

FIG. 1

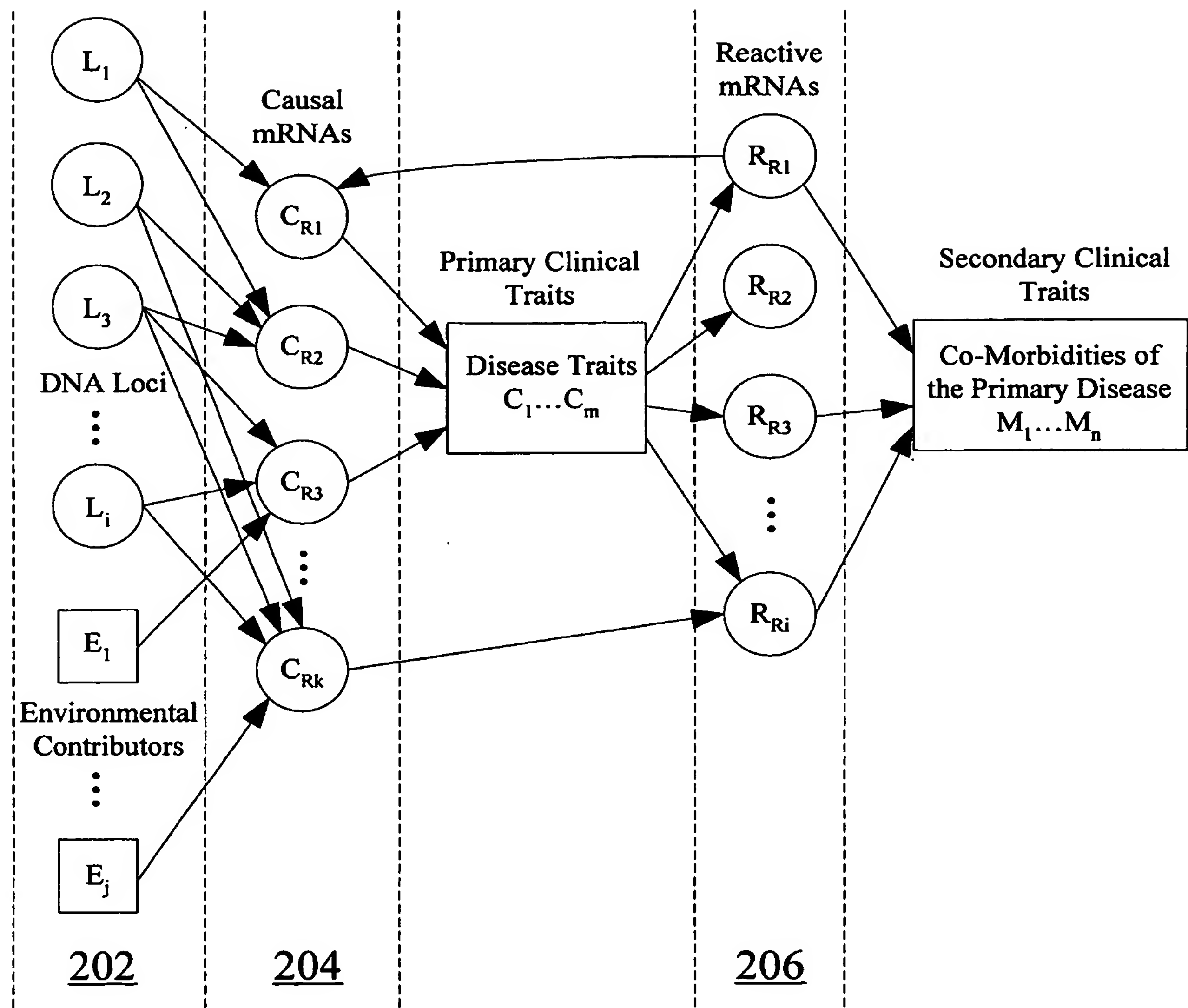


Fig. 2

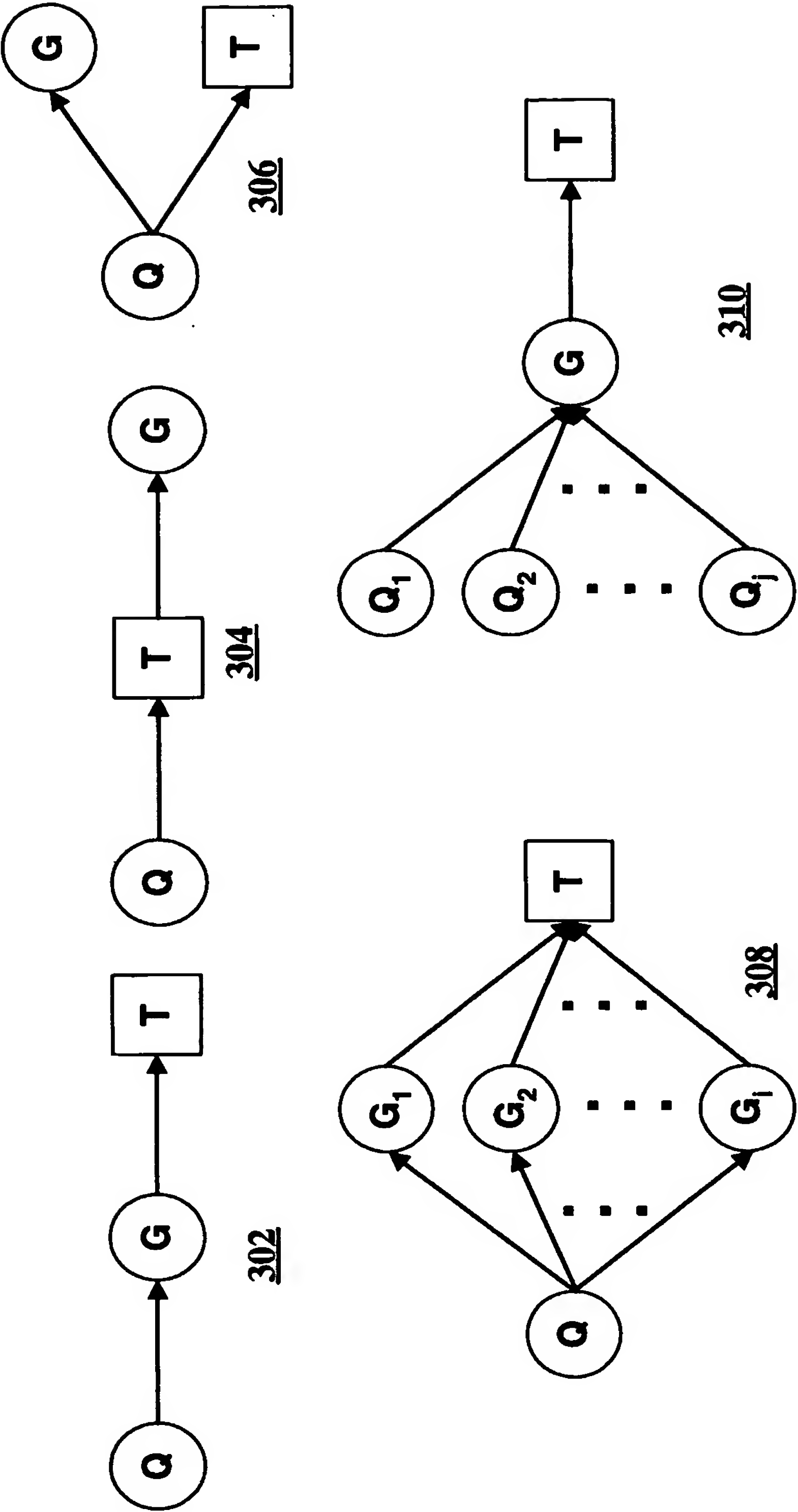
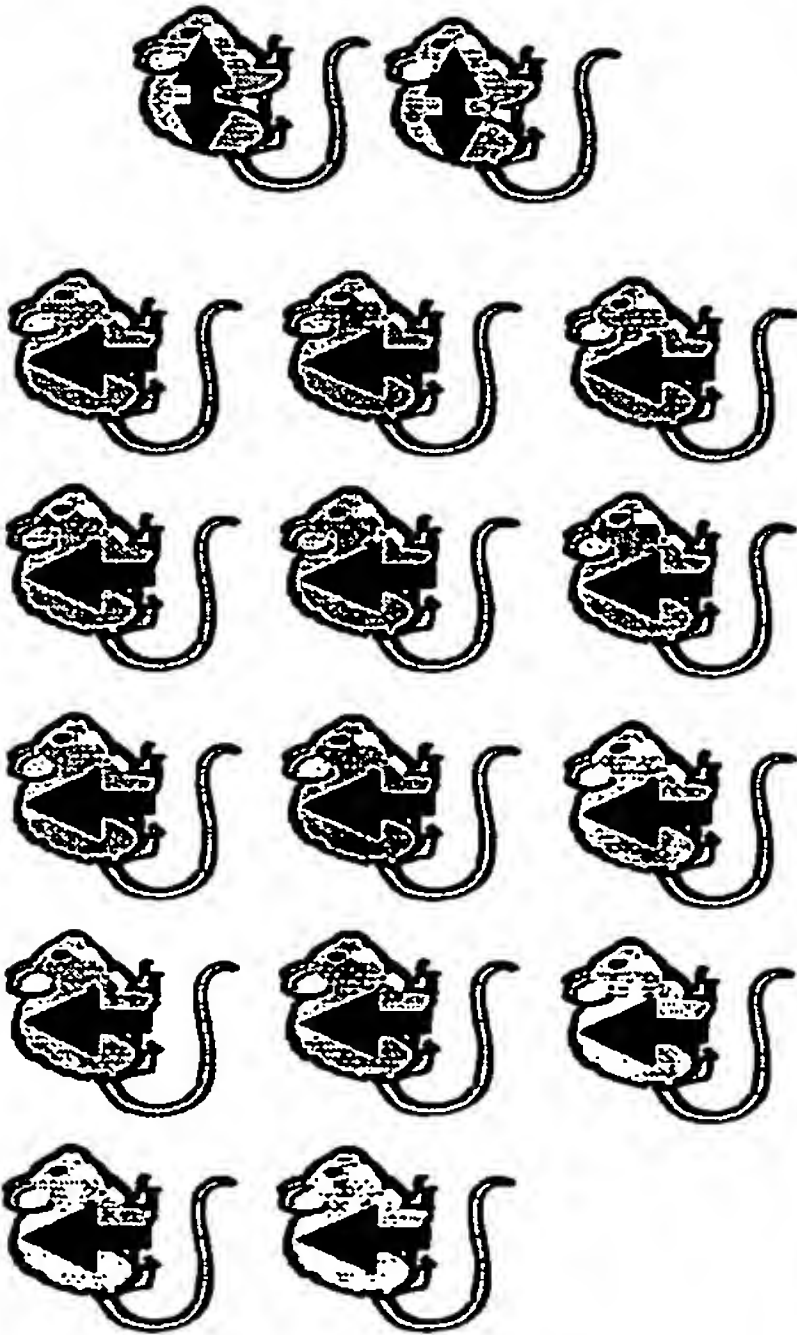


FIG 3A
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Genotype BB



Genotype AA

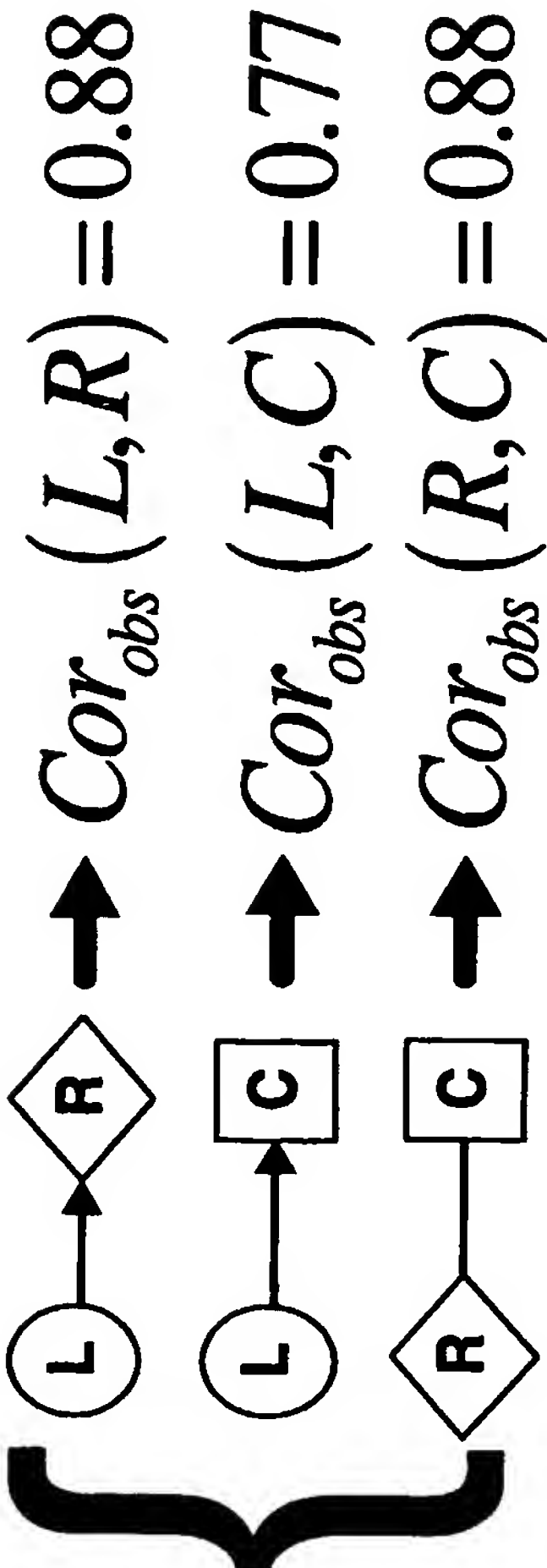
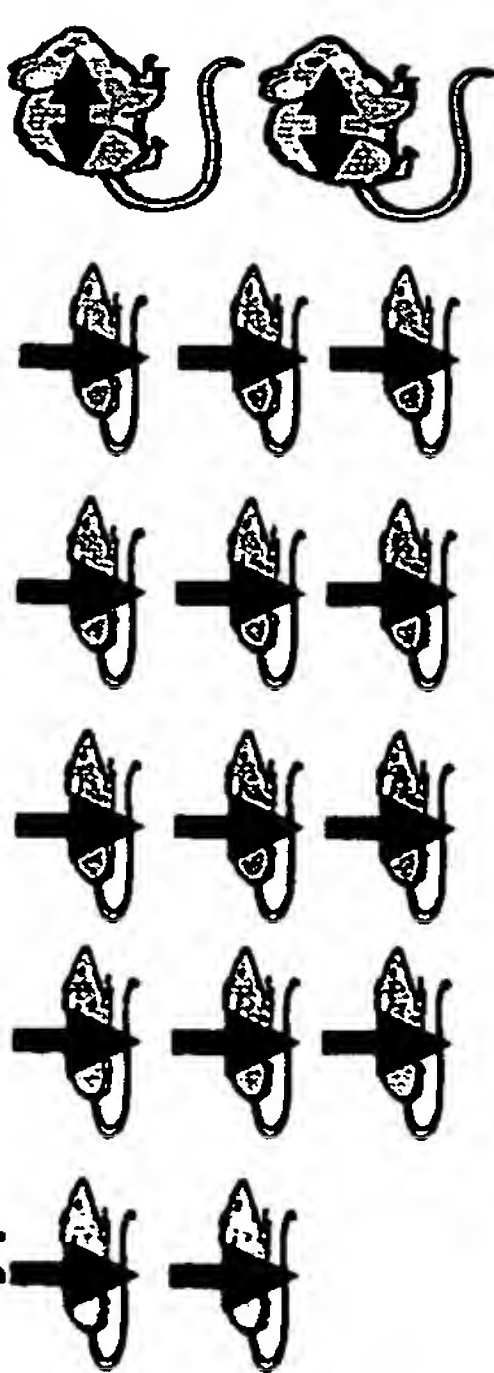


Figure 3B

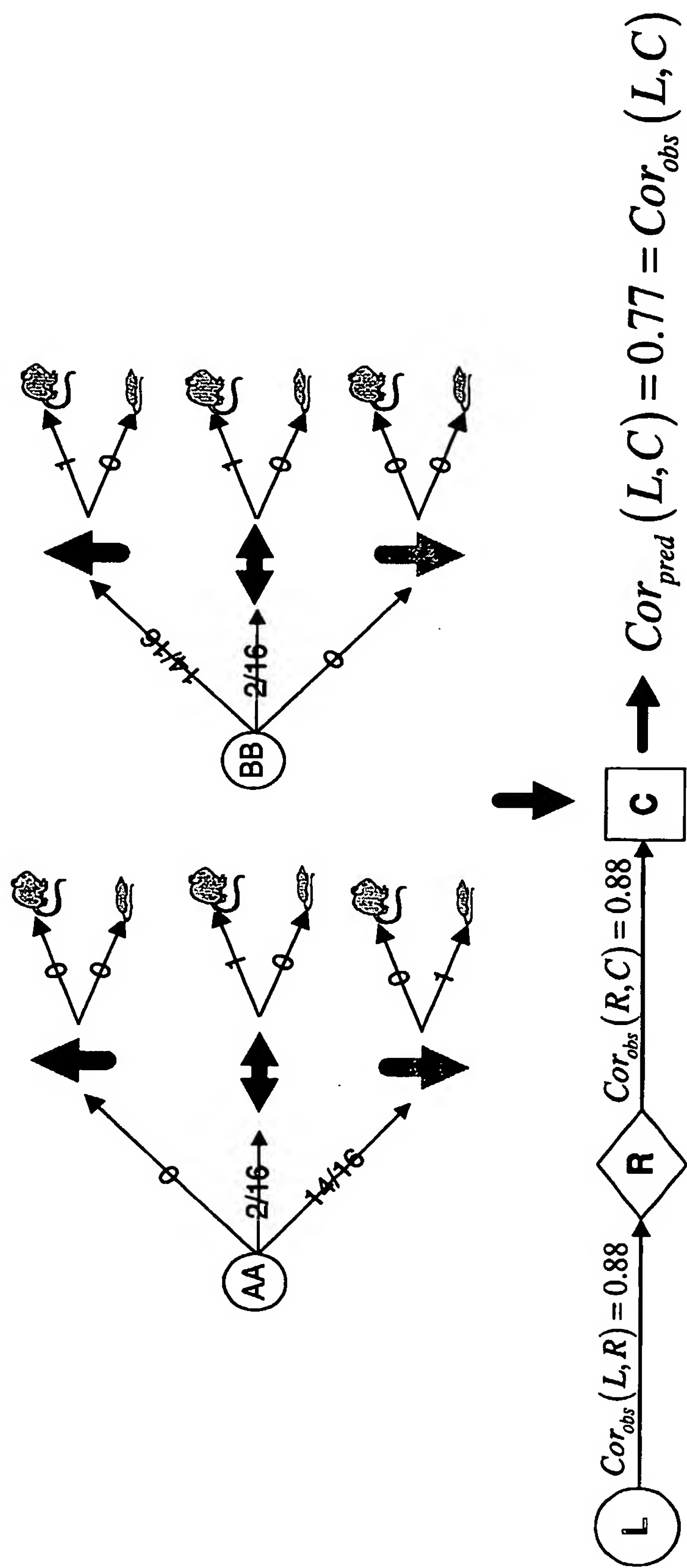


Figure 3C

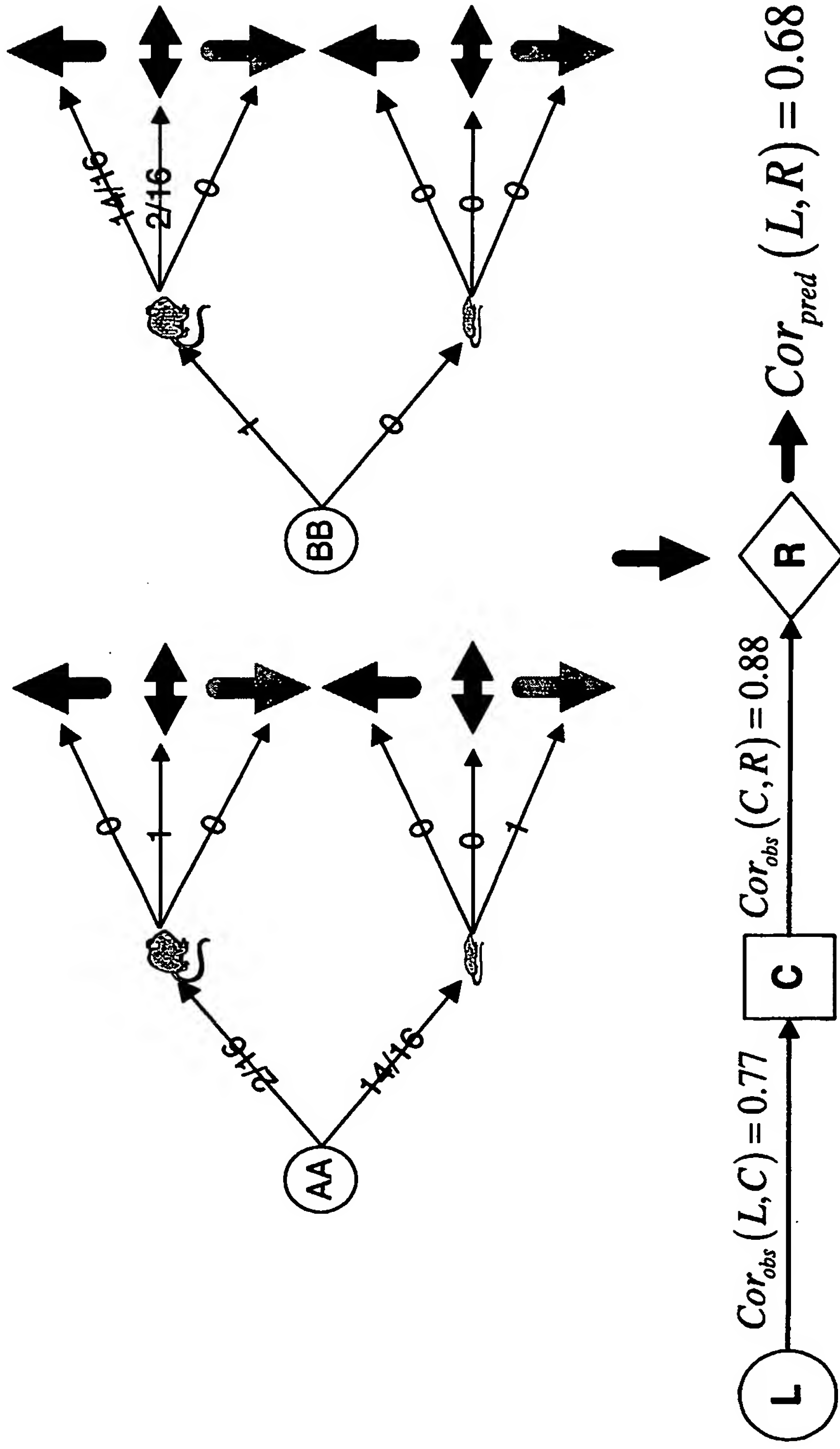


Figure 3D

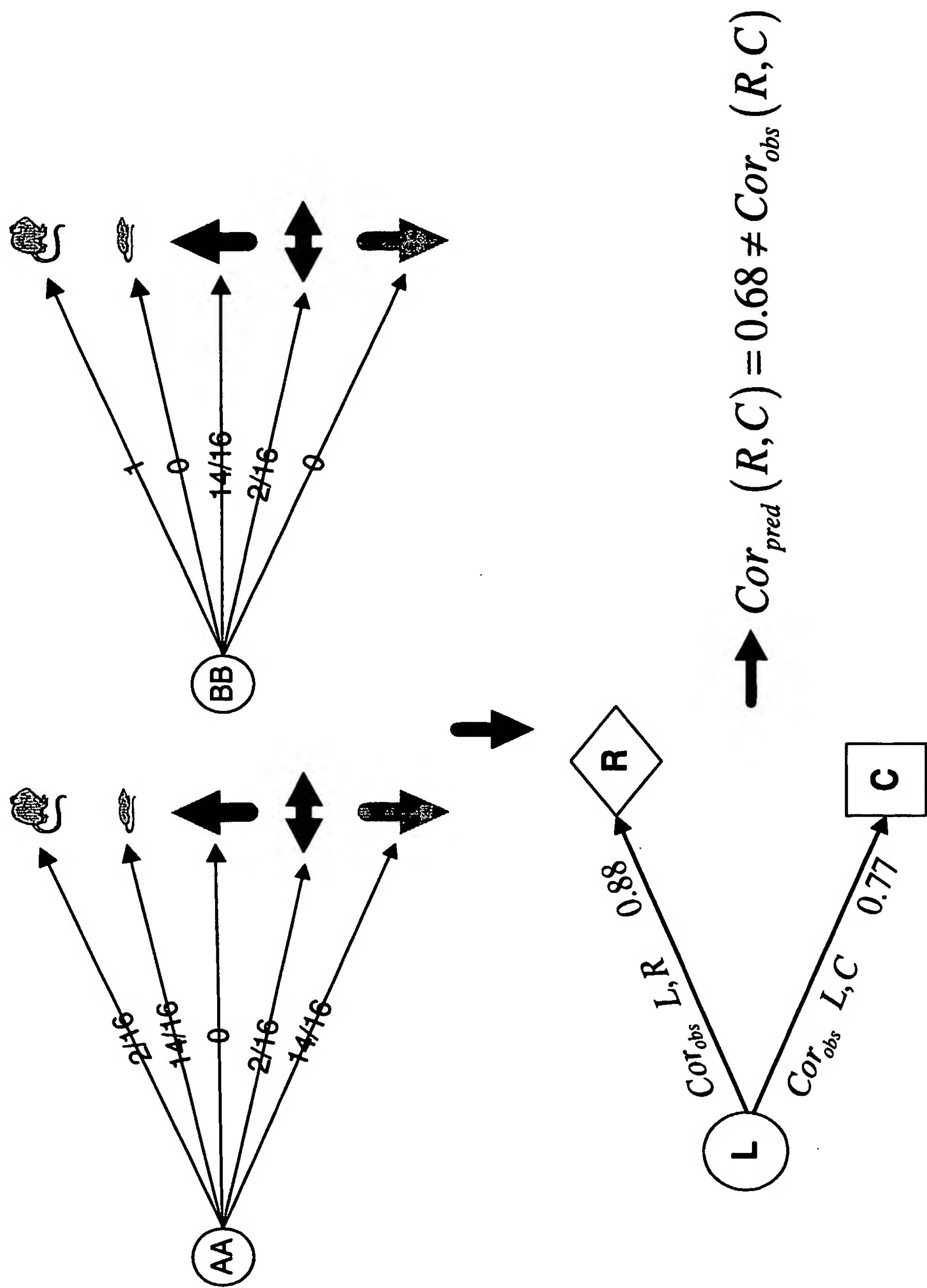


Figure 3E

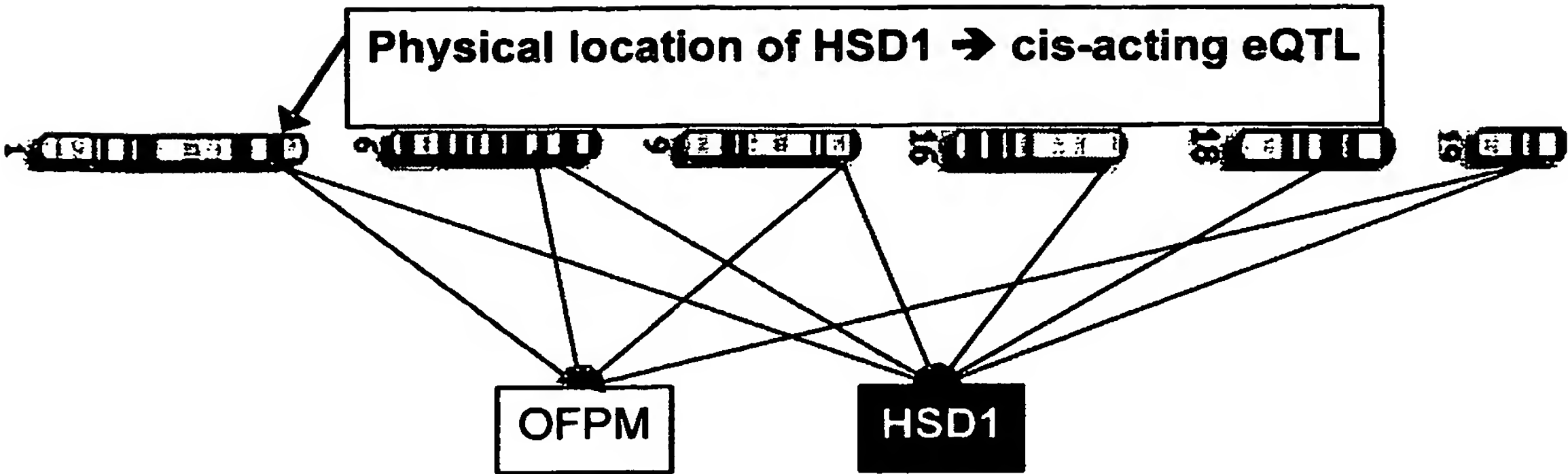


Fig. 4.

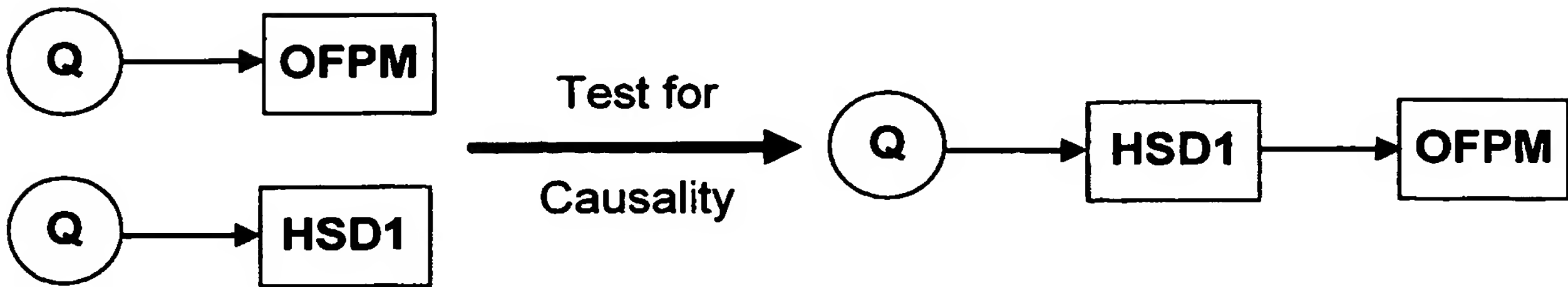


Fig. 5

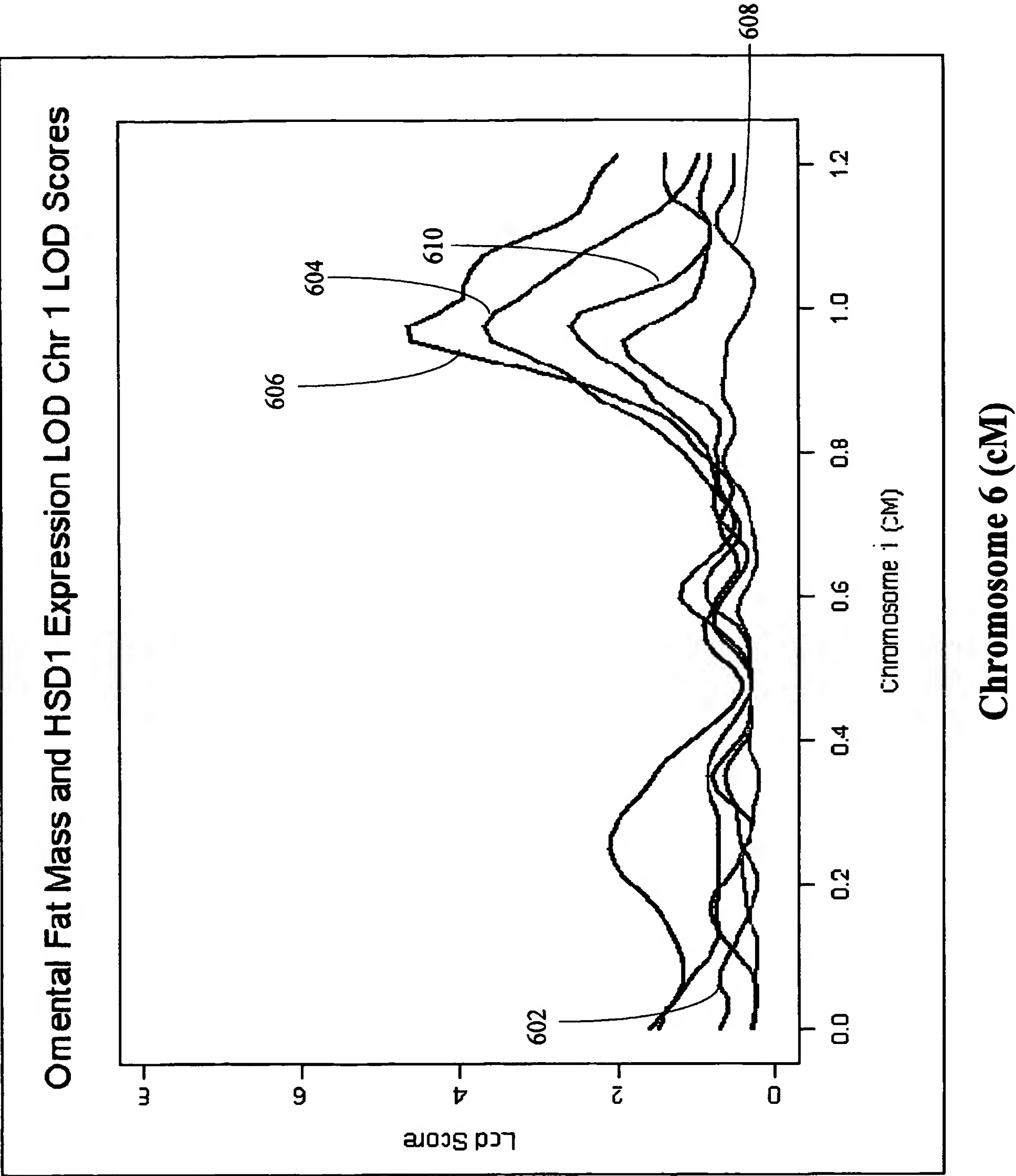


Fig. 6
9/60

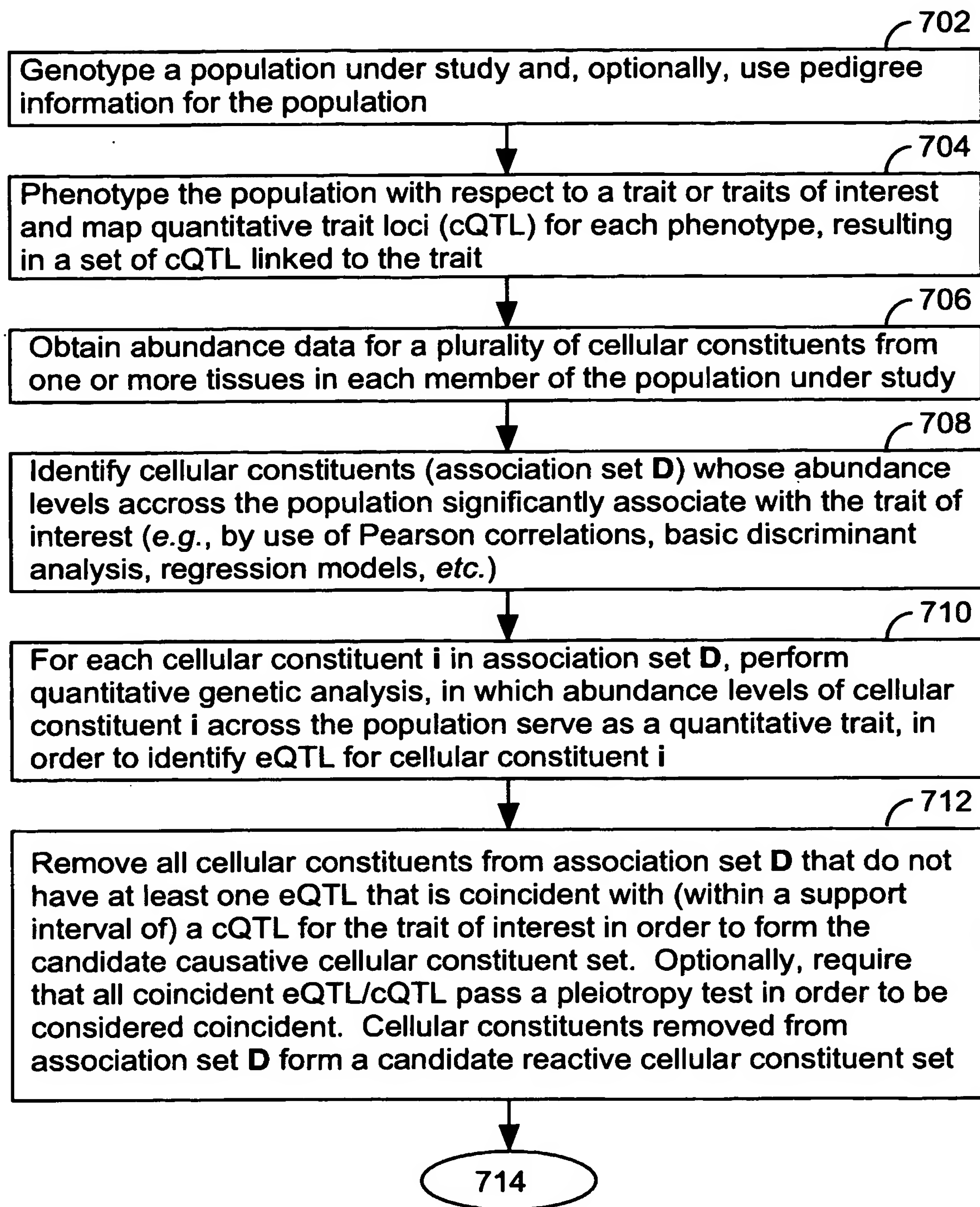


FIG. 7A

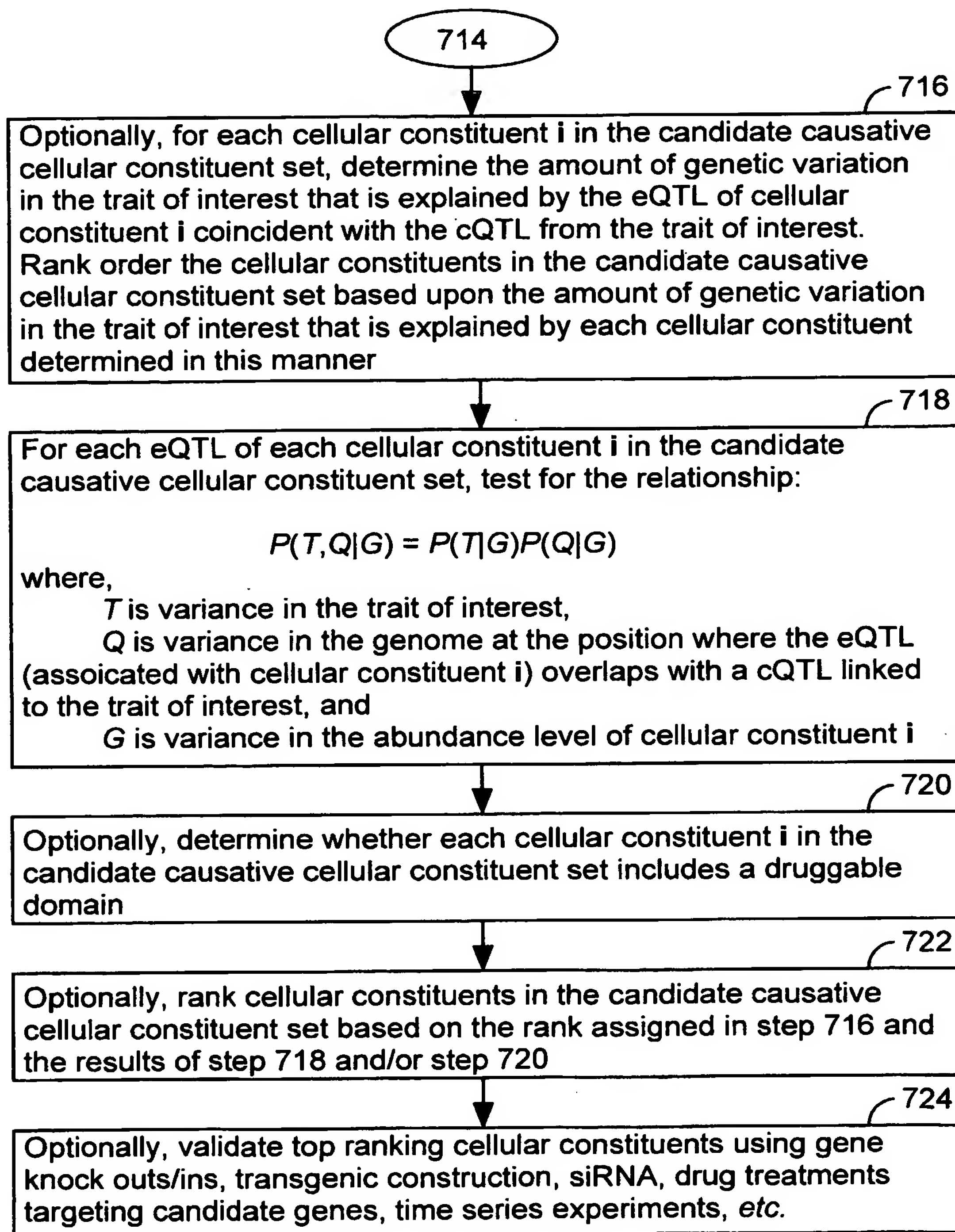


FIG. 7B

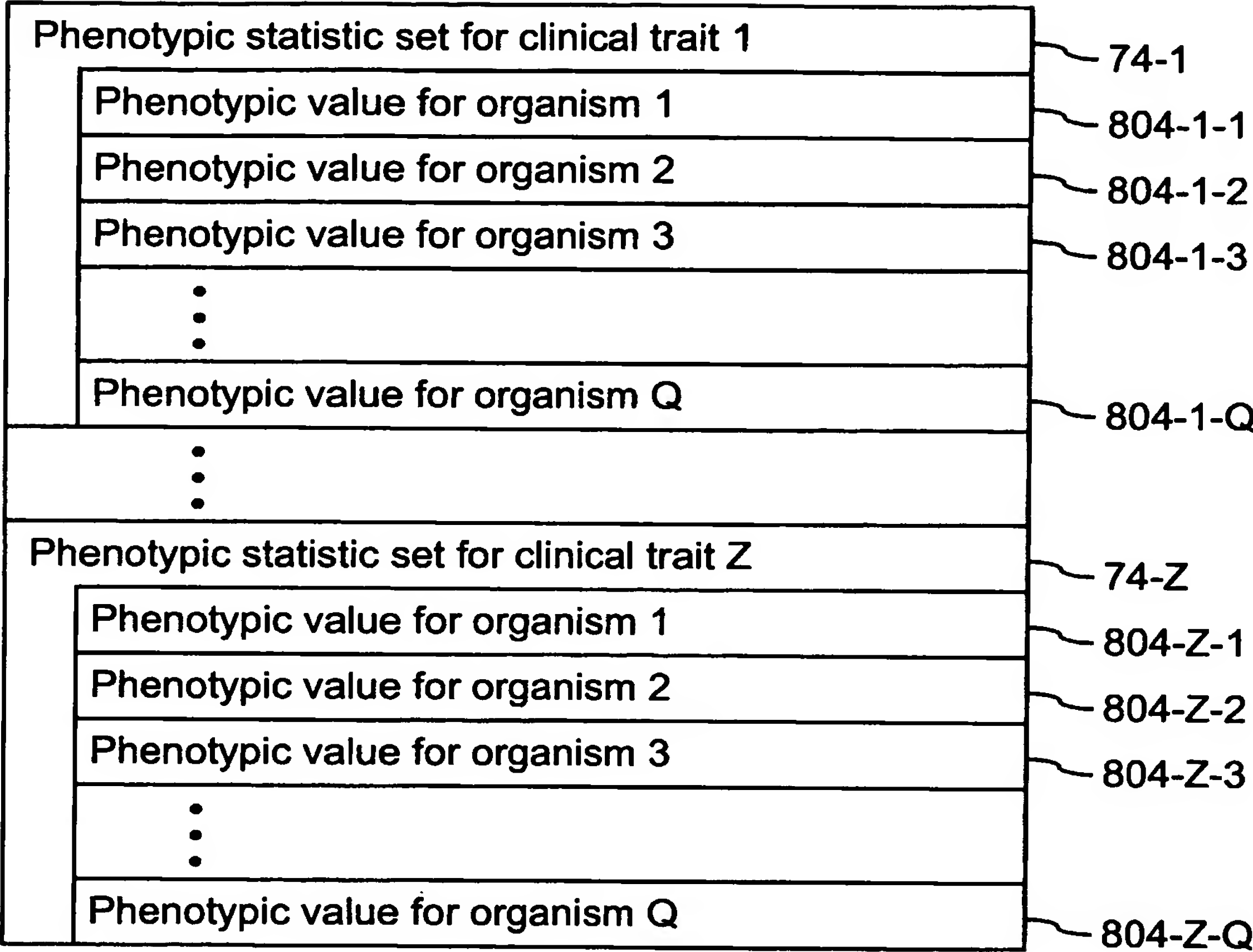


FIG. 8

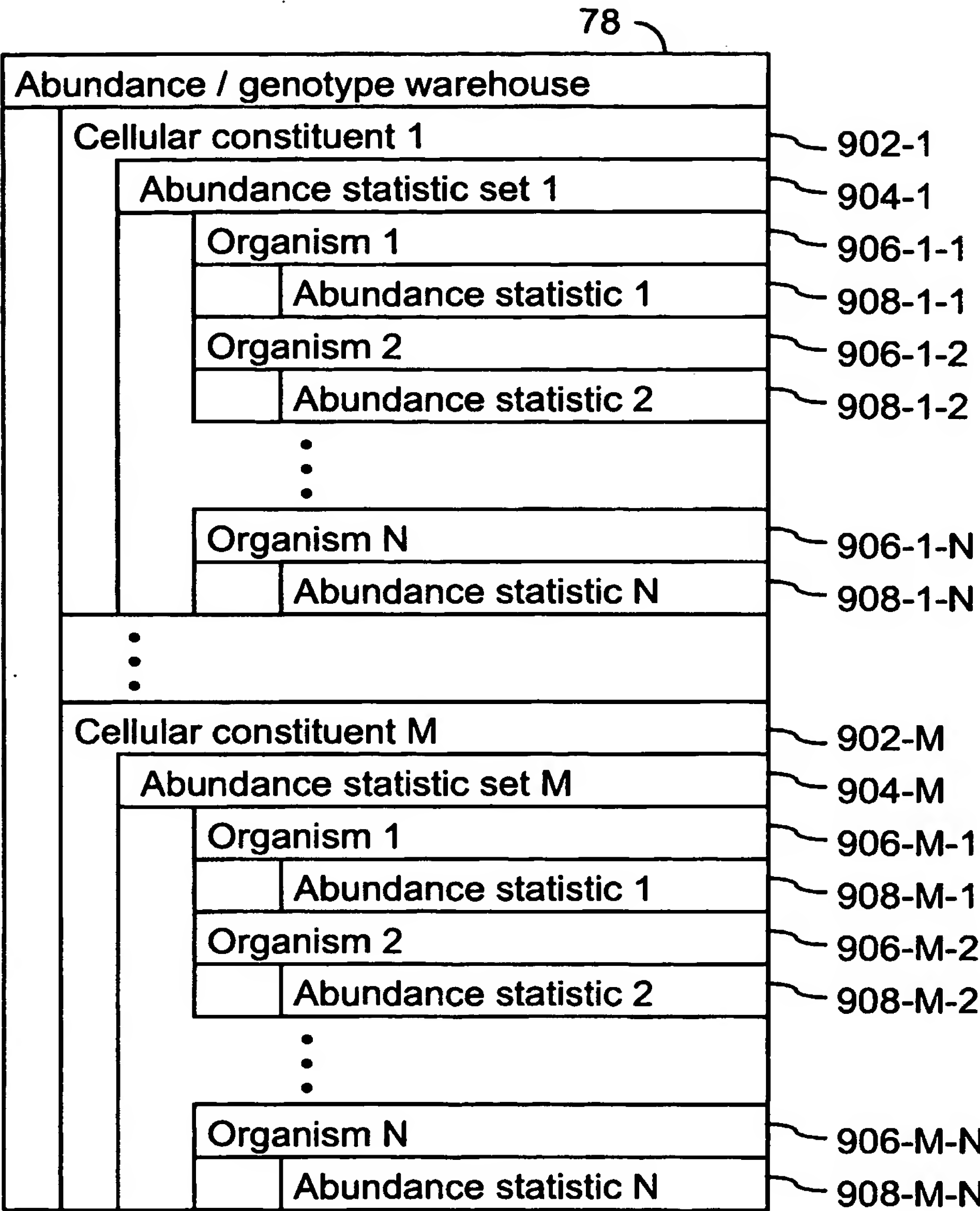
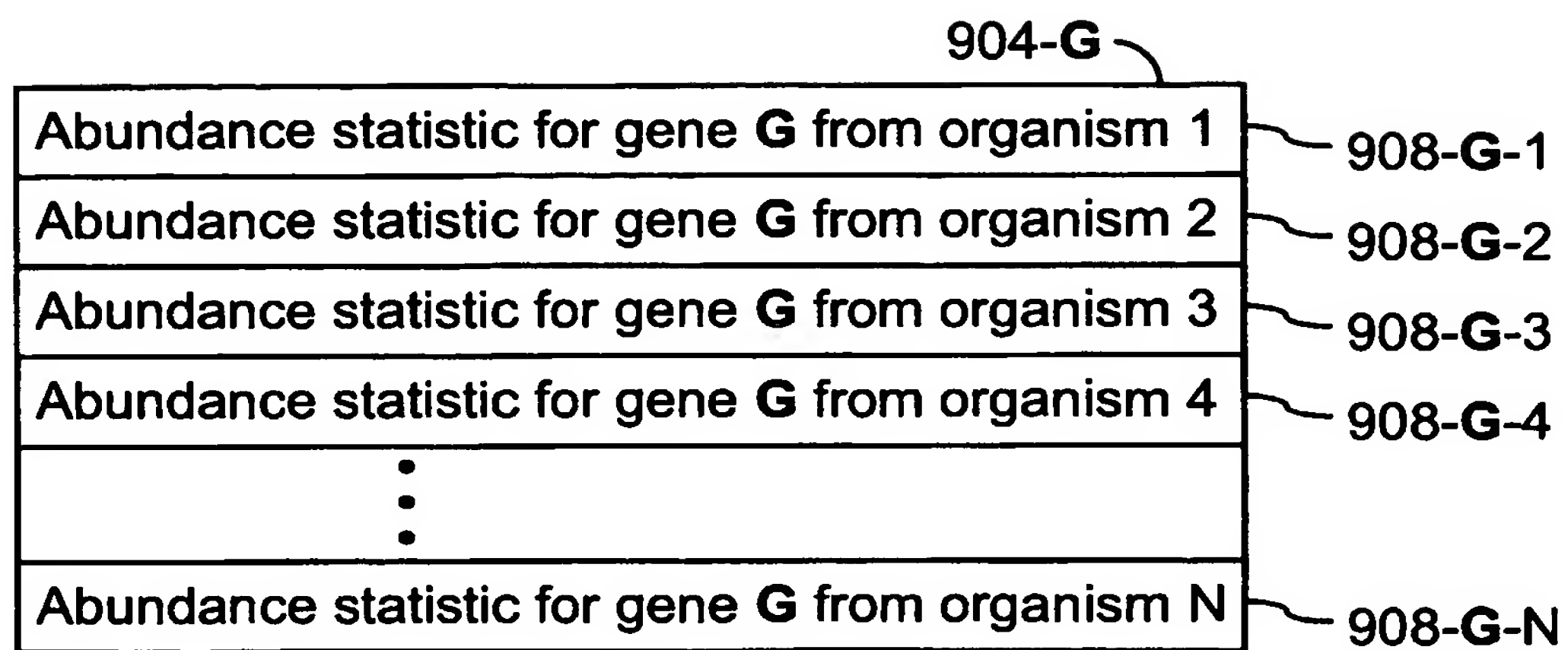


FIG. 9

**FIG. 10**

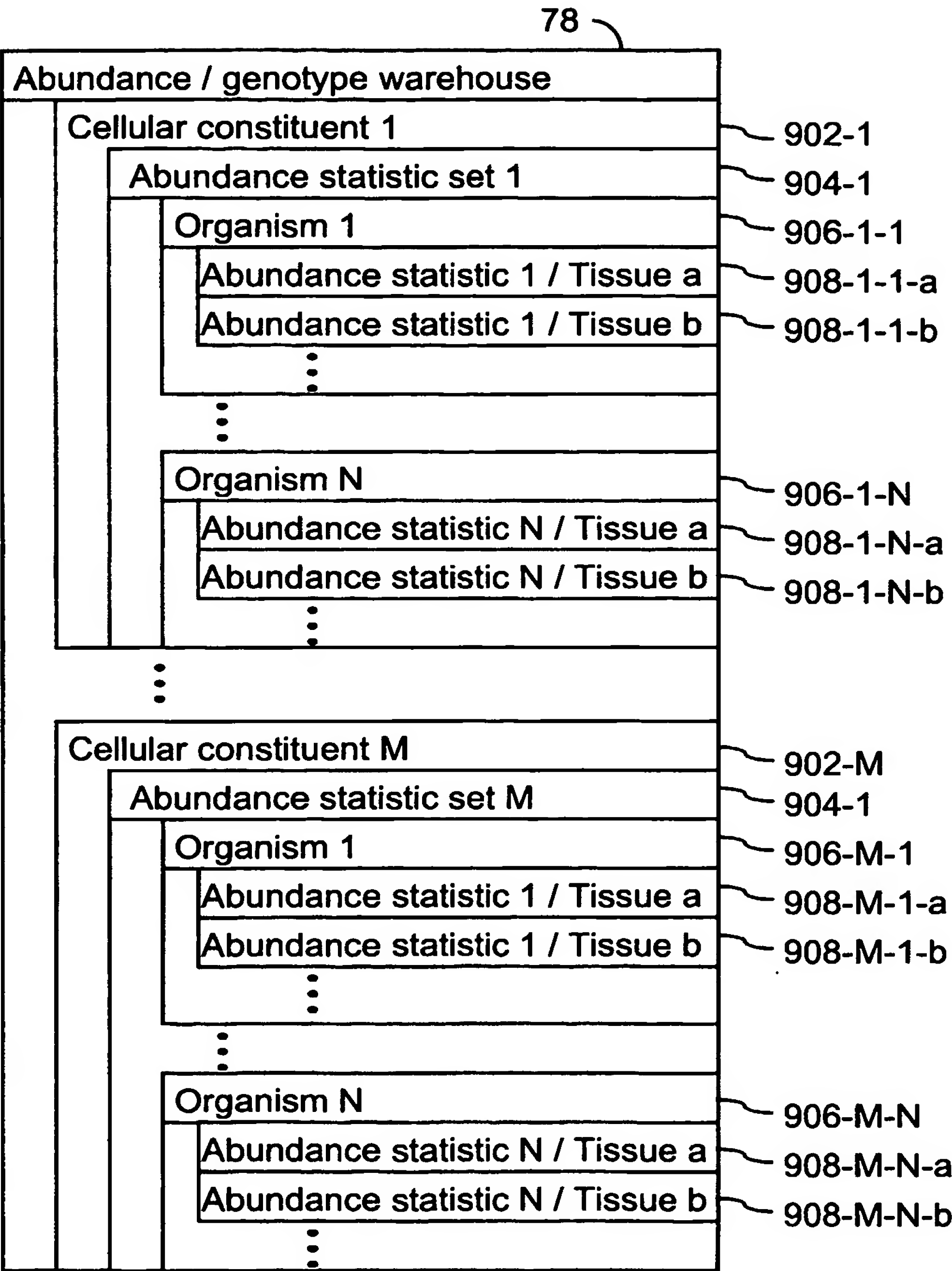


FIG. 11

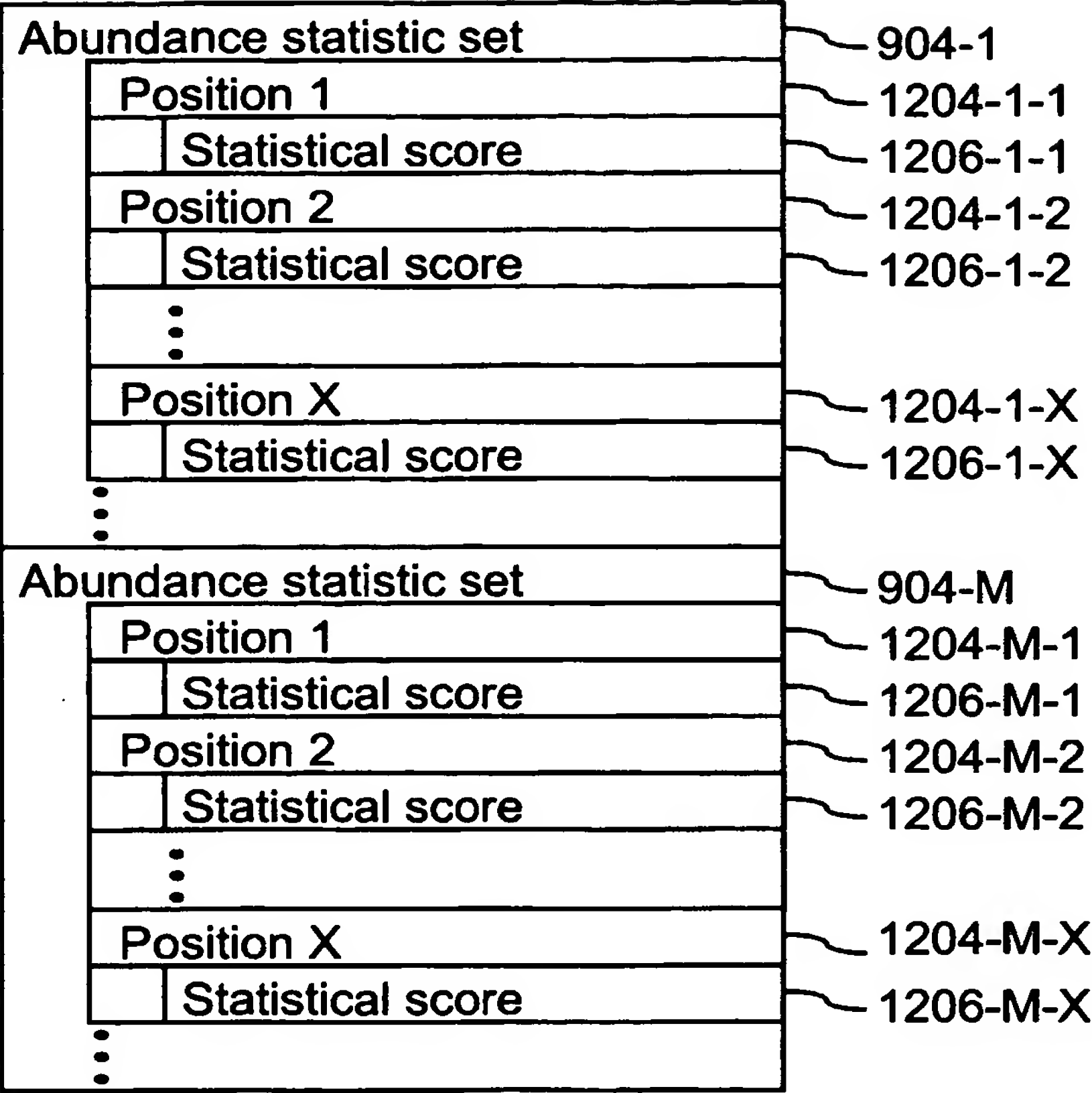


FIG. 12

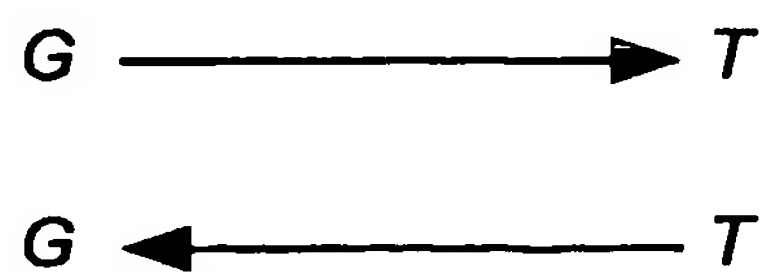


FIG. 13A

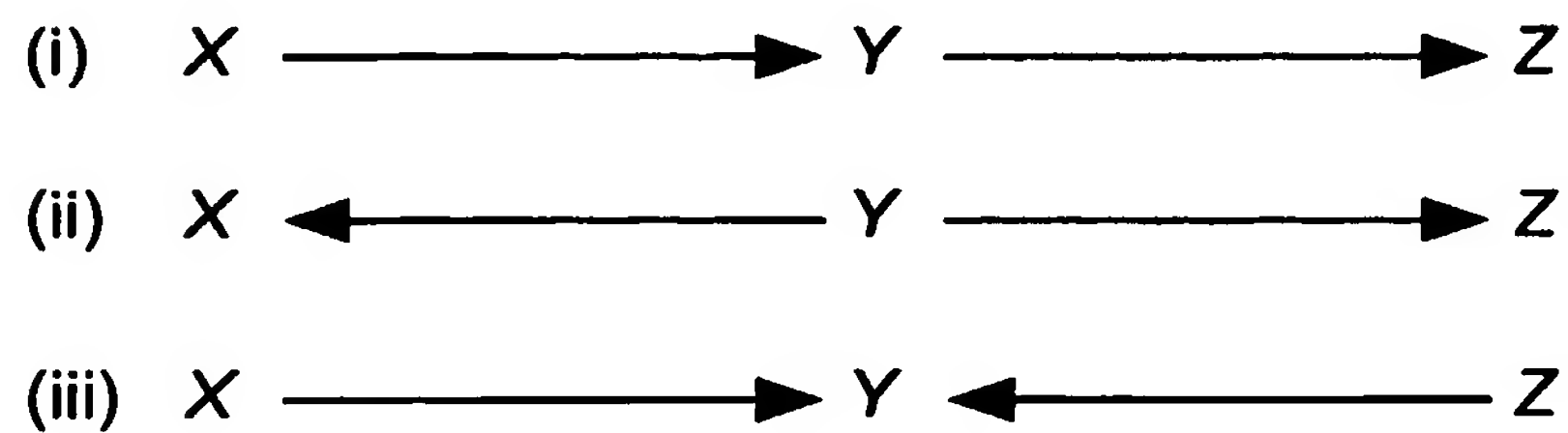


FIG. 13B



FIG. 13C



FIG. 13D

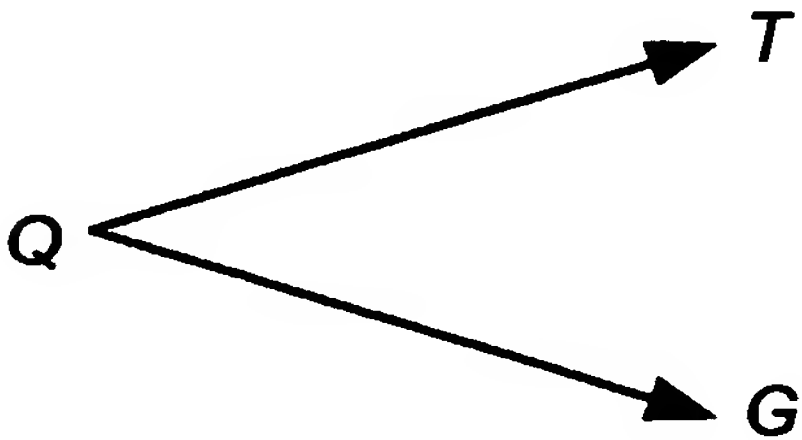


FIG. 13E

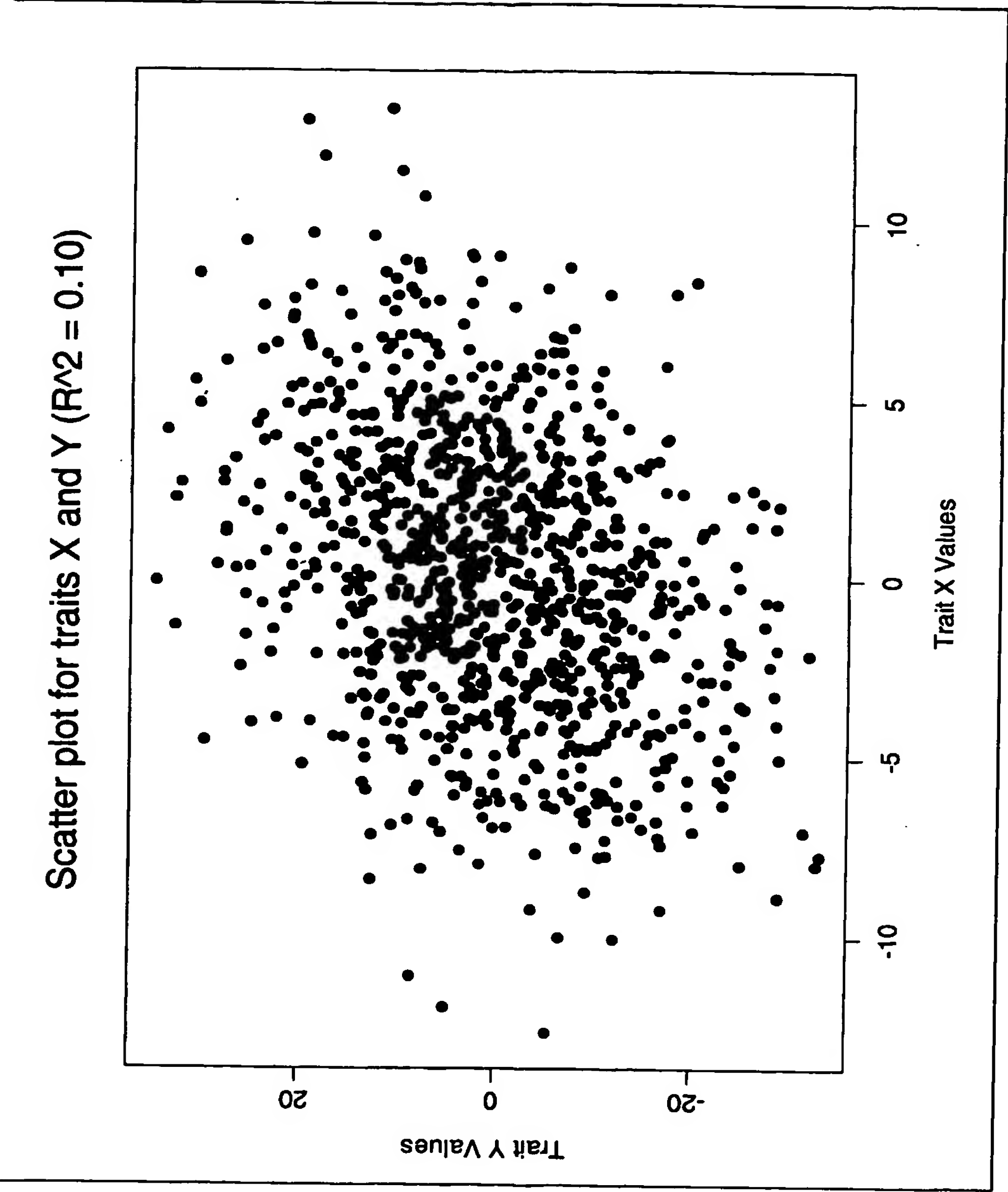


Fig. 14

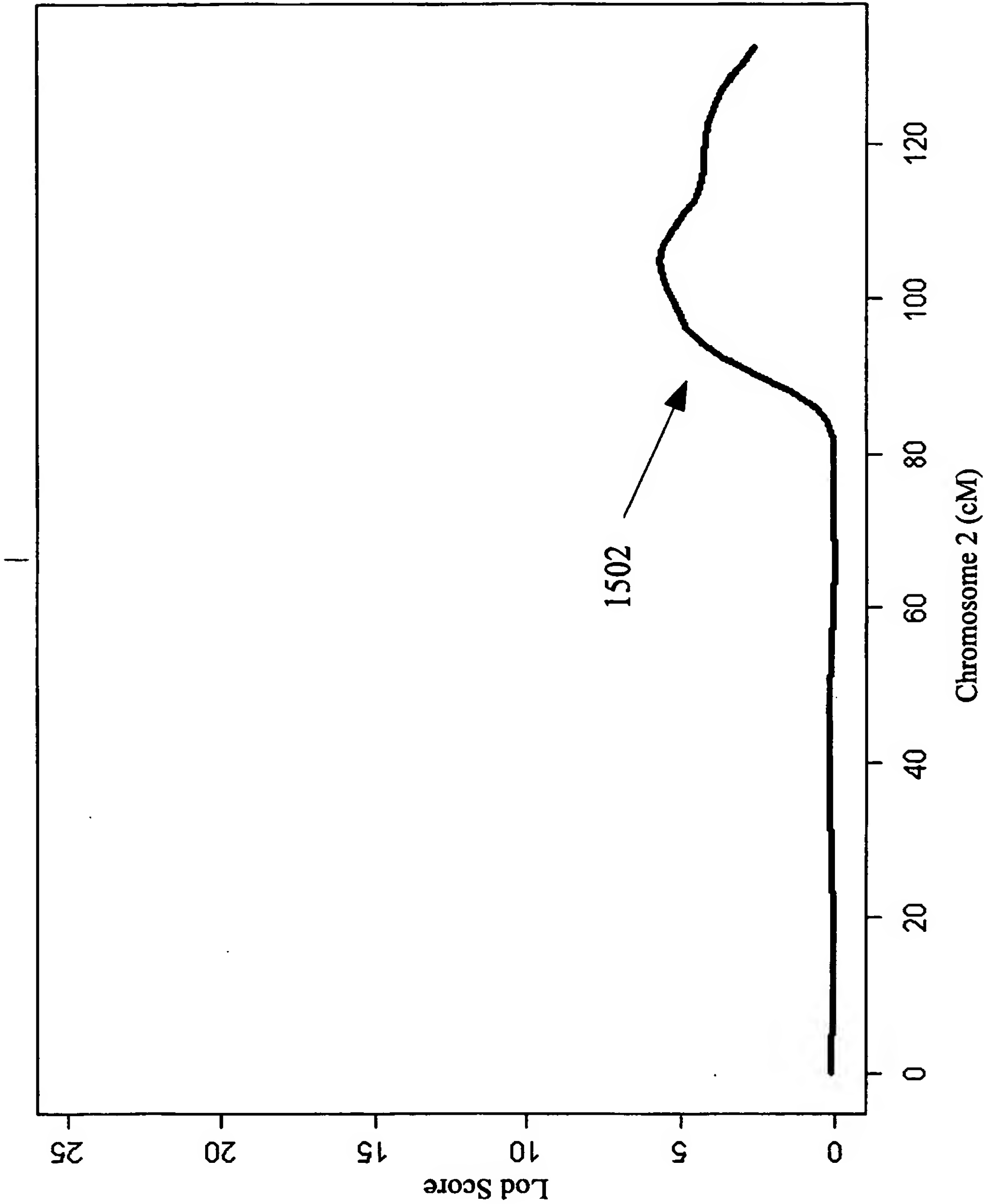


Fig. 15A

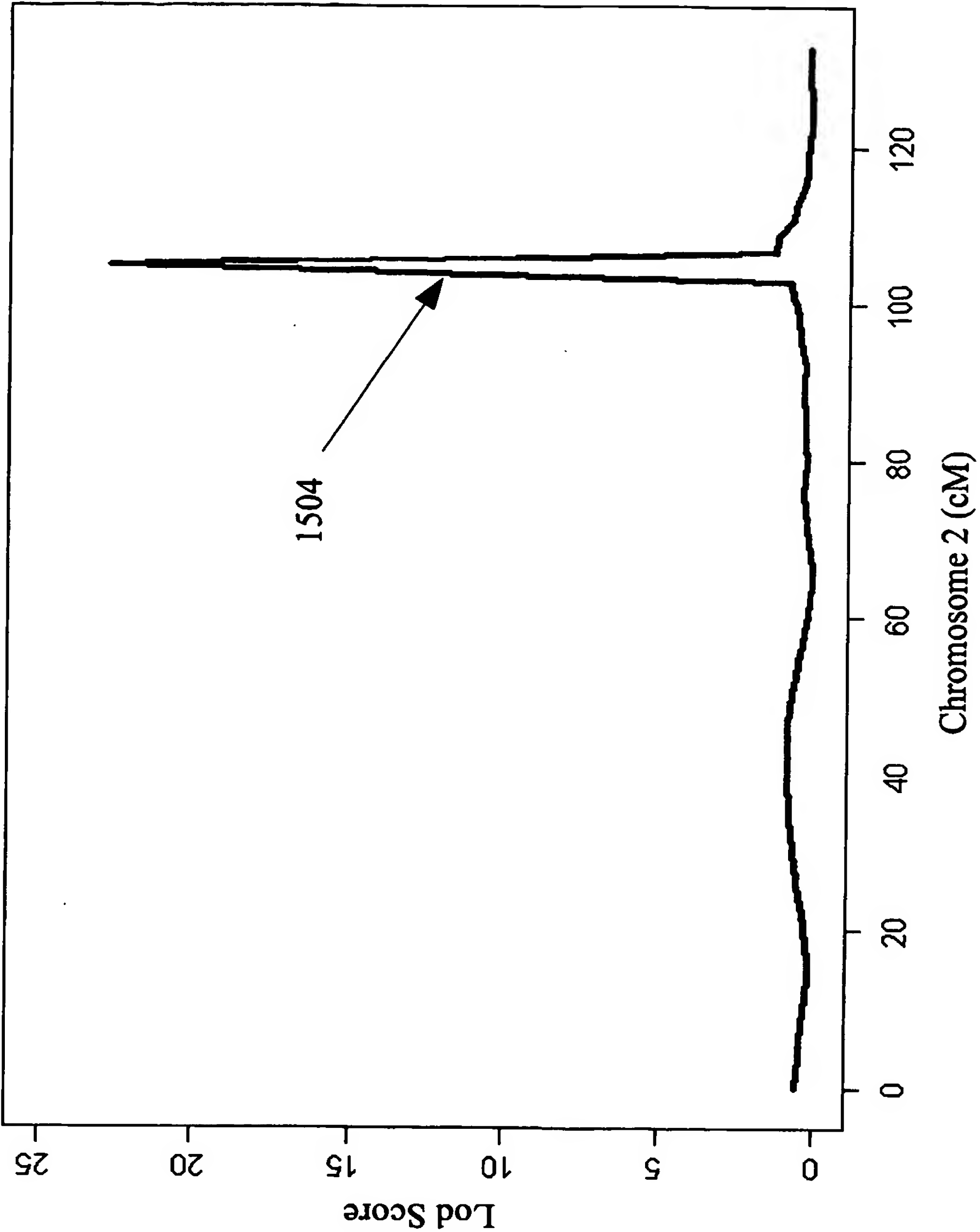


Fig. 15B

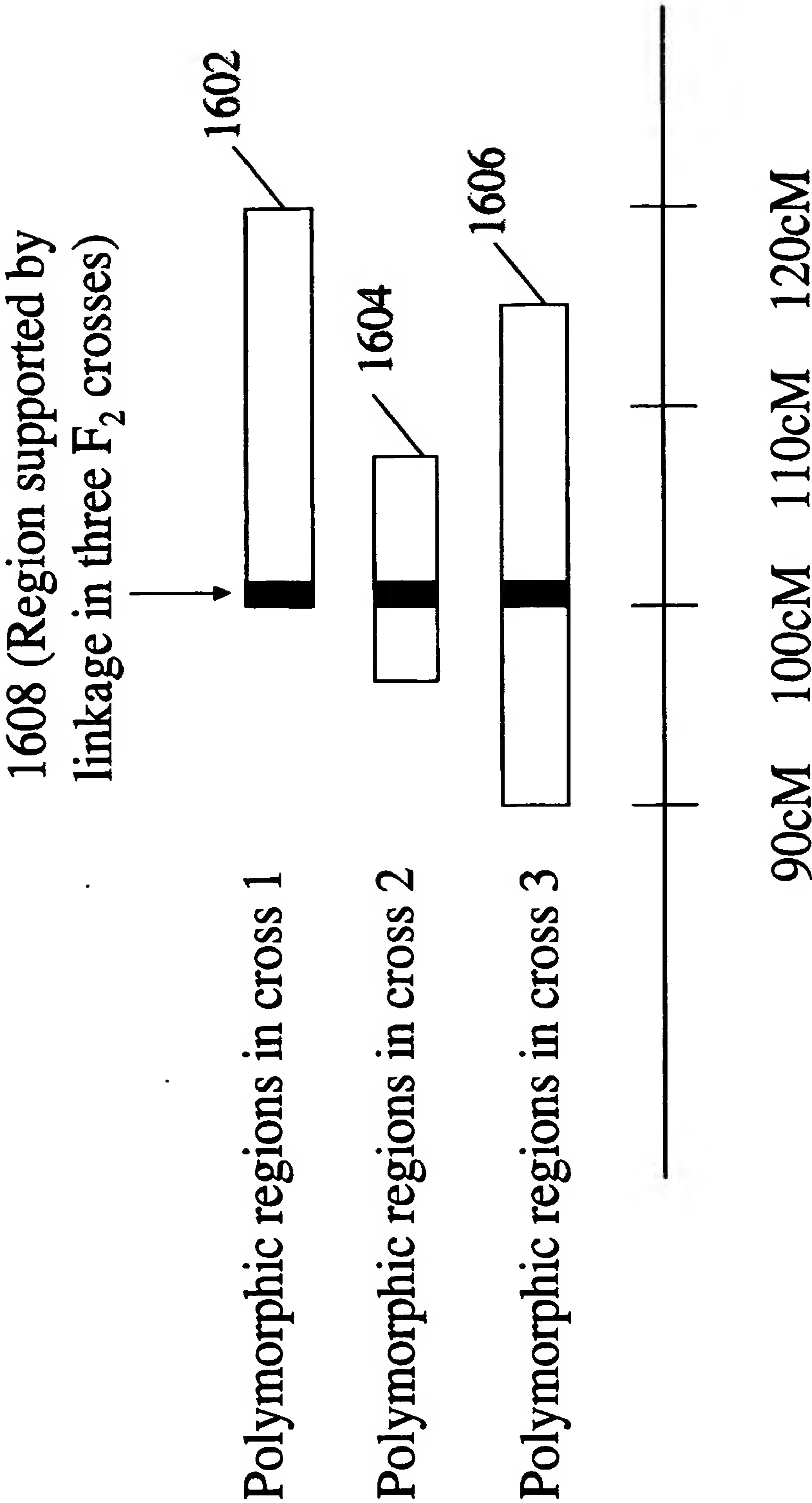


Fig. 16

10	20	30	40	50	60
MEPEAPRRRH	THQRGYLLTR	NPHLNKDLAF	TLERQQQLNI	HGLLPPSFNS	QEIQVLRVVK
70	80	90	100	110	120
NFEHLNSDFD	RYLLLLMDLQD	RNEKLFYRVL	TSDIEKFMPI	VYTPTVGLAC	QQYSLVFRKP
130	140	150	160	170	180
RGLFITIHDR	GHIASVLNAW	PEDVIKAIVV	TDGERILGLG	DLGCNGMGIP	VGKLALYTAC
190	200	210	220	230	240
GGMNPQECLP	VILDVGTENE	ELLKDPLYIG	LRQRRVRGSE	YDDFLDEFME	AVSSKYGMNC
250	260	270	280	290	300
LIQFEDFANV	NAFRLLNKYR	NQYCTFNDDI	QGTASVAVAG	LLAALRITKN	KLSDQTILFQ
310	320	330	340	350	360
GAGEAALGIA	HLIVMALEKE	GLPKEKAIAKK	IWLVDKGLI	VKGRASLTQE	KEKFAHEHEE
370	380	390	400	410	420
MKNLEAIVQE	IKPTALIGVA	AIGGAFSEI	LKDMAAFNER	PIIFALSNPT	SKAECSAEQC
430	440	450	460	470	480
YKITKGRAIF	ASGSPFDPVT	LPNGQTLYPG	QGNNSYVFPG	VALGVVACGL	RQITDNIFLT
490	500	510	520	530	540
TAEVIAQQVS	DKHLEEGRLY	PPLNTIRDVS	LKIAEKIVKD	AYQEKTATVY	PEPQNKEAFV
550	560	570			
RSQMYSTDYD	QILPDCYSWP	EEVQKIQTKV	DQ		

(SEQ ID NO: 1)

Fig. 17

10	20	30	40	50	60
MEPRAPRRRH	THQRGYLLTR	DPHLNKDLAF	TLERQQQLNI	HGLLPPCIIS	QELQVLRIIK
70	80	90	100	110	120
NFERLNSDFD	RYLLLLMDLQD	RNEKLFYSVL	MSDVEKFMPI	VYTPTVGLAC	QQYSLAFRKP
130	140	150	160	170	180
RGLFISIHDK	GHIASVLNAW	PEDVVKAIVV	TDGERILGLG	DLGCNGMGIP	VGKLALYTAC
190	200	210	220	230	240
GGVNPQQCLP	ITLDVGTENE	ELLKDPLYIG	LRHRRVRGPE	YDAFLDEFME	AASSKYGMNC
250	260	270	280	290	300
LIQFEDFANR	NAFRLLNKYR	NKYCTFNDDI	QGTASVAVAG	LLAALRITKN	KLSDQTVLFO
310	320	330	340	350	360
GAGEAALGIA	HLVVMAMEKE	GLSKENARKK	IWLVDKGLI	VKGRASLTEE	KEVFAHEHEE
370	380	390	400	410	420
MKNLEAIVQK	IKPTALIGVA	AIGGAFTEQI	LKDMAAFNER	PIIFALSSPT	SKAECSADEC
430	440	450	460	470	480
YKVTKGRAIF	ASGSPFDPVT	LPDGRTLFPG	QGNNSYVFPG	VALGVVACGL	RHIDDKVFLT
490	500	510	520	530	540
TREVISQQVS	DKHLQEGRLY	PPLNTIRGVS	LKIAVKIVQD	AYKEKMATVY	PEPQNKEEFV
550	560	570			
SSQMYSTNYD	QILPDCYPWP	AEVQKIQTKV	NQ		

(SEQ ID NO: 2)

Fig. 18

A.

Logomen Cells			Mod1 eqTL's		
Chr	Pos (M)	LOD	Chr	Pos (M)	LOD
1	1.12	1.62	6	0.42	4.45
3	0.92	1.59	9	0.10	5.56
5	0.00	1.93	13	1.02	3.91
6	0.47	2.84	16	0.00	3.16
9	0.08	2.53	17	0.57	2.17
19	0.18	1.60	19	0.22	2.00

Fig. 19A

B.

No. of Trail overlaps with Mod1		No. of Trail overlaps with Mod1	
logomen	3	sqrtretrog	2
epipa	2	fatbw	1
ftpsum	2	livebwt	1
lep	2	omen	1
logftpsum	2	subc	1
logsubc	2	ins	0
sqrtepipa	2	retrog	0
sqrtlep	2		

Fig. 19B

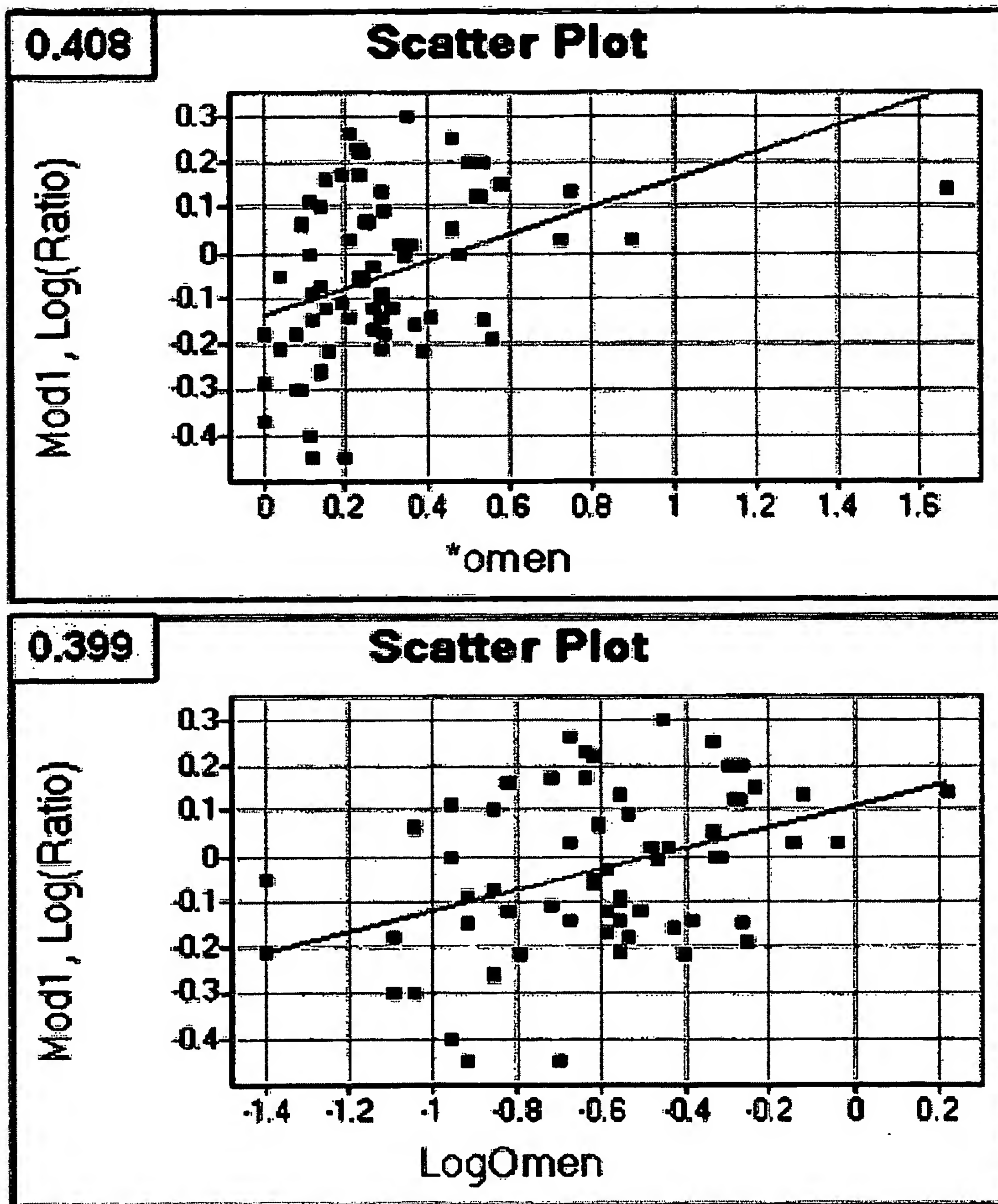


Fig. 20

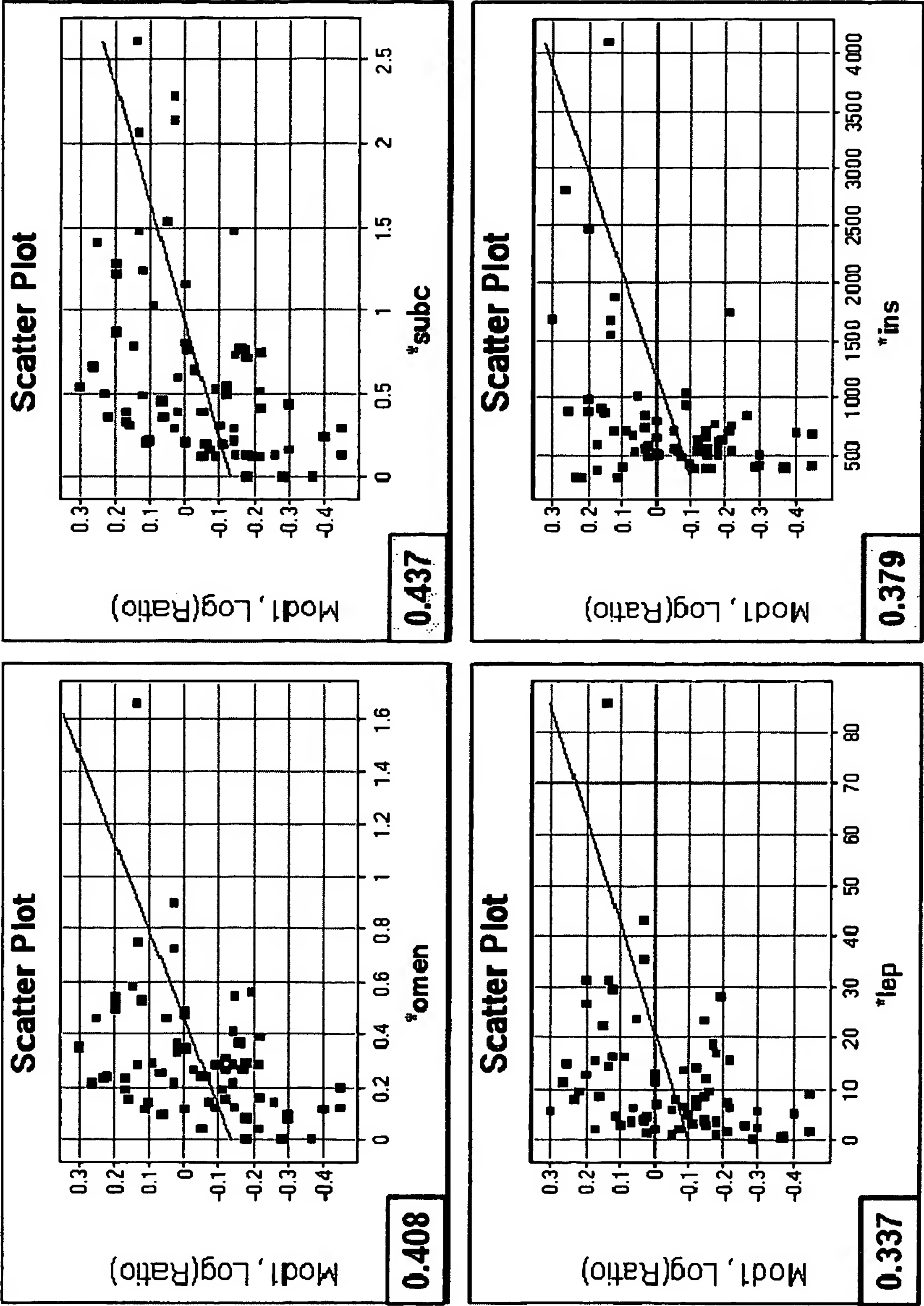


Figure 21

	*livebwt	*retrog	*epipa	*omen	*subc	*ftpsum	*fatbw	*lep	Mod1
*livebwt	1	0.56	0.65	0.64	0.62	0.67	0.43	0.67	0.23
*retrog		1	0.77	0.78	0.75	0.82	0.78	0.76	0.49
*epipa			1	0.89	0.86	0.99	0.91	0.94	0.36
*omen				1	0.84	0.92	0.82	0.92	0.41
*subc					1	0.92	0.87	0.85	0.44
*ftpsum						1	0.92	0.95	0.41
*fatbw							1	0.82	0.45
*lep								1	0.34
Mod1									1

Figure 22

1 IKEKGKPLXL NPRTNKGXAF TLQERQXLGL QGLLPPKIET QDIQALRFHR
51 NLKKXTSPLE KYIYIXGIQE RNEKLFYRIL QDDIESLXPI VYTPTVGLAC
101 SQYGHIFRRP KGLFISISDR GHVRSIVDNW PENHVKAVVV TDGERILGLG
151 DLGVYGXGIP VGKLCLYTAC AGIRPDRCLP VCIDVGTDNI ALLKDPFYXG
201 LYQKRDRTQQ YDDLIDEFXK AITDRYGRNT LIQFEDFGNH NAFRFLRKYR
251 EKYCTFNDDI QGTAVALAG LLAAQKVISK PISEHKILFL GAGEAALGIA
301 NLIVXSXVEN GLSEQEAQKK IWXFDKYGLL VKGRKAKIDS YQEPFTHSAP
351 ESIPDTFEDA VNILKPSTII GVAGAGRLFT PDVIRAXASI NERPVIFALS
401 NPTAQAECTA EEAYTLTEGR CLFASGSPFG PVKLTGGRVF TPGQGNNVYI
451 FPGVALAVIL CNTRHISDSV FLEAAKALTS QLTDEELAQG RLYPPLANIQ
501 EVSINIAIKV TEYLYANKXA FRYPEPEDKA KYVKERTWRS EYDSL LPDVY
551 EWPESASSPP VITE

(SEQ ID NO: 3)

Fig. 23

10	20	30	40	50	60
MLSRLRVVST	TCTLACRHLH	IKEKGKPLML	NPRTNKGMAF	TLQERQMLGL	QGLLPPKIET
70	80	90	100	110	120
QDIQALRFHR	NLKKMTSPLE	KYIYIMGIQE	RNEKLFYRIL	QDDIESLMPI	VYTPTVGLAC
130	140	150	160	170	180
SQYGHIFRRP	KGLFISISDR	GHVRSIVDNW	PENHVKAVVV	TDGERILGLG	DLGVYGMGIP
190	200	210	220	230	240
VGKLCLYTAC	AGIRPDRCLP	VCIDVGTDNI	ALLKDPFYMG	LYQKRDRTQQ	YDDLIDEFMK
250	260	270	280	290	300
AITDRYGRNT	LIQFEDFGNH	NAFRFLRKYR	EKYCTFNDDI	QGTAVALAG	LLAAQKVISK
310	320	330	340	350	360
PISEHKILFL	GAGEAALGIA	NLIVMSMVEN	GLSEQEAQKK	IWMFDKYGLL	VKGRKAKIDS
370	380	390	400	410	420
YQEPFTHSAP	ESIPDTFEDA	VNILKPSTII	GVAGAGRLFT	PDVIRAMASI	NERPVIFALS
430	440	450	460	470	480
NPTAQAECTA	EEAYTLTEGR	CLFASGSPFG	PVKLTDGRVF	TPGQGNNVYI	FPGVALAVIL
490	500	510	520	530	540
CNTRHISDSV	FLEAAKALTS	QLTDEELAQG	RLYPPLANIQ	EVSINIAIKV	TEYLYANKMA
550	560	570	580		
FRYPEPEDKA	KYVKERTWRS	EYDSLLPDVY	EWPEASSP	VITE	

(SEQ ID NO: 4)

Fig. 24

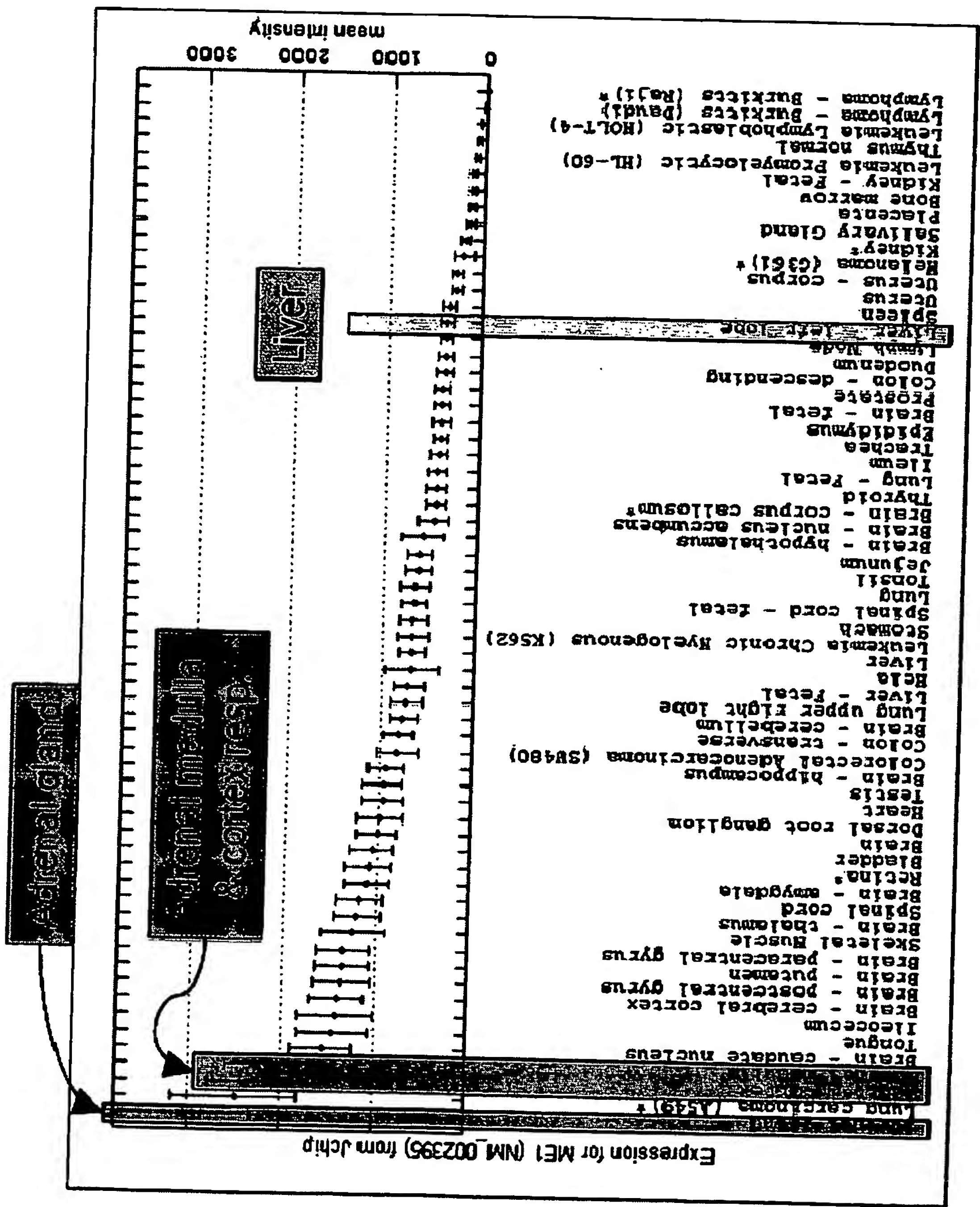


Fig. 25

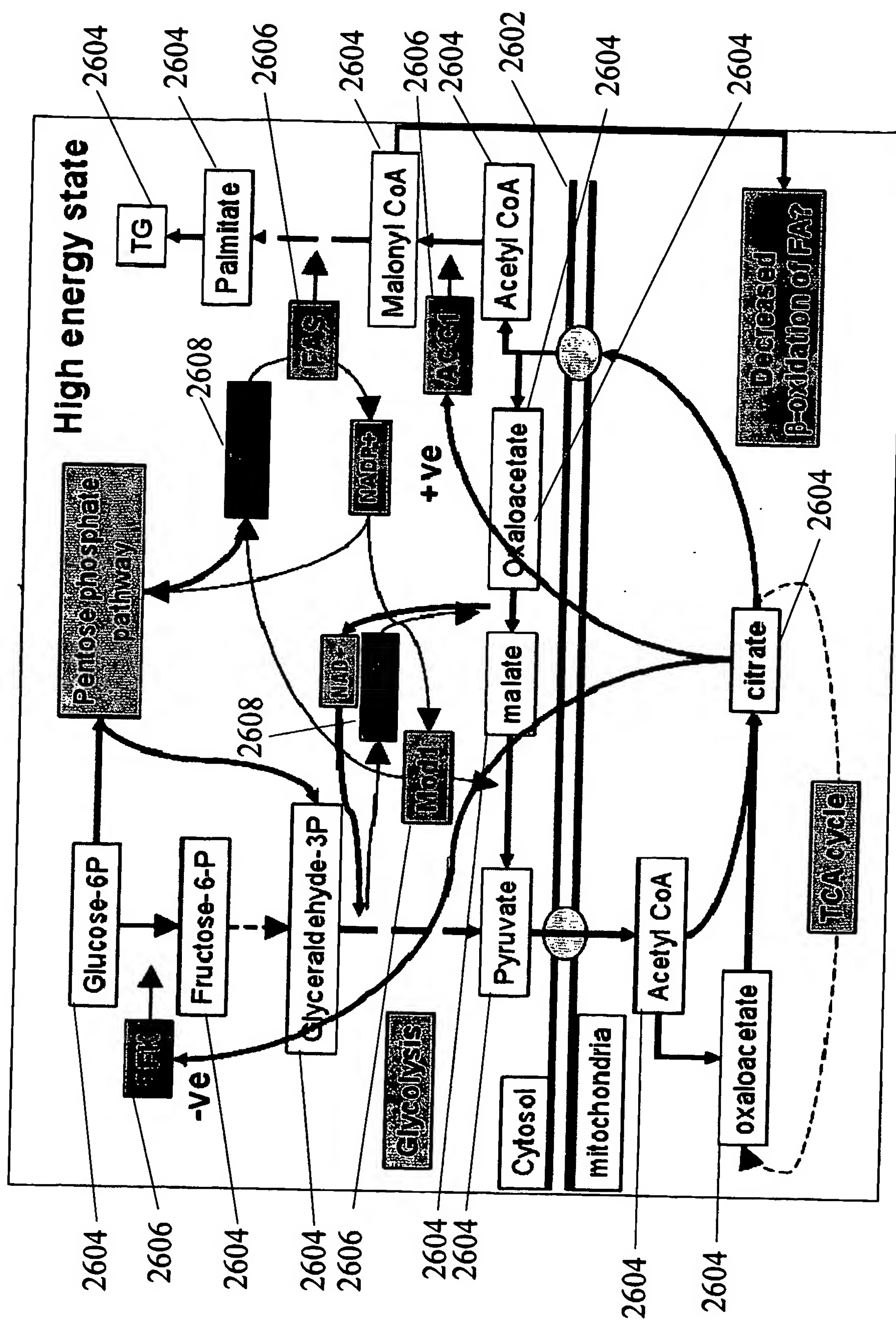


Fig. 26

1 atggccttta cccttgaaga aaggctgcag cttggaatcc acggcctaata cccgccctgc
61 tttctgagcc aggacgtcca gtcctccga atcatgagat attacgagcg gcagcagagt
121 gacctggaca agtacatcat tctcatgaca ctccaagacc gtaacgagaa gctcttctac
181 cgagtgctga cttcggacgt ggagaagttc atgccaatcg tgtacacgcc taccgtgggg
241 ctagcctgtc agcactatgg cctgactttc cgcaggcccc gtggactgtt catcaccatt
301 catgacaaag gtcattcttc aacaatgctg aattcttggc cagaagacaa tattaaggcc
361 gtggtggtga ctgatgggga gcgcattctg ggctgggag acctgggctg ctacggcatg
421 ggcatccctg tgggcaagct ggccctgtac acggcatgcg gaggggtgaa cccgcagcag
481 tgcctccctg tgctgctgga cgtcggcacc aacaatgagg agctgctcag agaccctctg
541 tacatcggcc tgaaacacca gcgcgtgcac gggaaggcat acgatgactt gctggatgag
601 ttcattgcagg ctgtgacaga caagtttgga ataaattgcc tcatccaatt tgaagacttc
661 gccaatgcca atgccttccg cctgctcaac aaataccgta acaagtactg catgttcaat
721 gatgacatcc aagatgactt ctccagaggc ccaaagaggt cacaactttt cttcaagtga

(SEQ ID NO: 5)

Fig. 27

```
1 atgttggtccg ggttaagcgt agtttccacc acttgactt tggcatgtct acatttacac
61 ataaaagaaa aaggcaagcc acttatgctg aatccaagaa caaacaaggg aatggcattt
121 actttacaag aacgacagat gcttggtctt caagggttc tacctcccca aatacagaca
181 taagatattc aagccttacg attccataga aacttgaaaa aaatgactag cccttcggaa
241 aactatatct acataatggg aatacaagaa agaaatgata aattgtttta tagaatactg
301 caagatgaca cggagagttt aatgccaat gcatatacac cgacggttgg tcttgctgc
361 tcccagtgtg gacacctctt tagaagacct aagggttat ttatttccat ctcagacaga
421 ggtcatgtta gatcaattgt ggataagtgg ccagaaaatc atgttaaggc tgttttagtg
481 actgatggag agagaattct gggtcattga gatctgggtg tctatggaat ggggaattcca
541 gtaggaaaaa tttgtttgta tacagtttgt ccaggaatat ggctgatag atgccttctg
601 gtgtgtattg atgtgggagc tgataatatc gcactcttaa aaggcacatt ttacatgggc
661 ttgtaccaga aacgagatcg cacacaacag tctgatgatc caattgatga gtttatgaaa
721 gctattactg acagatatgg ctggaacaca ctcttcagt ttgaagggtt tggacatcat
781 aatgcattca gattcttgag aaaataccaa taaaatgtt gcactttcaa tgatgatatt
841 caagggacag ctgcagtagc tctaataagg cttcttgcaa cacaaaaagt tactagtaaa
901 ccaatctccg aacacaaaat cttattcctt ggagcaggag agattactct tagaattgca
961 aatcttgtag tattgtctat ggtagaaaat ggctgtcag aagaagaggc acaaaagaaa
1021 atctggatgt ttgacaagta tggtttatta gtttaggggc agaaagcaaa aatagattgt
1081 tatcaggaac catttactta ccagtcacca gagagcatac ctgatacttt tgaagatgca
1141 gtgaatataa tgaagacttc aactacaatt ggagttgcag gtgctggccg tcttttctact
1201 cctgatgtaa tcagagccat tggctgtatc aatgaaaggc ctgtaatat tgcattaagt
1261 aatcctacag cacaggcgga gtgcaggagt tgcacggctg gagaagcata tacacttaca
1321 gagggcaaat gtttggttgc cagtggcagt ccatttgggc cagtgaact cacagatggg
1381 cgaatcttta caccagatcg aggaacaat gtatatattt ttccagggtg gactttagct
1441 gttattctct gtaacacca gcaaattagt gacaatgttt tcctagaagc tgcaaaggca
1501 ttgacaagcc acgtgacgga tgacgcgcta gcccgaggga gactttactt accacttgct
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1621 aaaatggctt tctcaatacc cagaacctga
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(SEQ ID NO: 6)

Fig. 28

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1  ccgcccgcac agctgcagtc agcacccgtca ccccagcagc atccgcccgc tgcaccgcgc
61  gtgcggcccg ccccggcctg accccgcgcg cgaacccggc gccagccatg gagcccgaag
121 ccccccgtcg ccgccacacc catcagcgcg gctacctgct gacacggaac cctcacctca
181 acaaggactt ggcctttacc ctggaagaga gacagcaatt gaacattcat ggattggtgc
241 caccttcctt caacagtcag gagatccagg ttcttagagt agtaaaaaat ttcgagcatc
301 tgaactctga ctttgacagg tatcttctct taatggatct ccaagataga aatgaaaaac
361 tcttttatag agtgctgaca tctgacattg agaaattcat gcctattggt tatactccca
421 ctgtgggtct ggcttgccaa caatatagtt tgggtgttcg gaagccaaga ggtctcttta
481 ttactatcca cgatcgaggg catattgctt cagttctcaa tgcattggcca gaagatgtca
541 tcaaggccat tgtggtgact gatggagagc gtattcttgg cttgggagac cttggctgta
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721 atccactcta cattggacta cggcagagaa gagtaagagg ttctgaatat gatgattttt
781 tggacgaatt catggaggca gtttcttcca agtatggcat gaattgcctt attcagtttg
841 aagattttgc caatgtgaat gcatttcgtc tcctgaacaa gtatcgaaac cagtattgca
901 cattcaatga tgatattcaa ggaacagcat ctgttgagct tgcaggtctc cttgcagctc
961 ttcgaataac caagaacaaa ctgtctgac aaacaatact attccaagga gctggagagg
1021 ctgccctagg gattgcacac ctgattgtga tggccttgga aaaagaaggt ttaccaaaag
1081 agaaagccat caaaaagata tggctgggtg attcaaaagg attaataggt aagggacgtg
1141 cttccttaac acaagagaaa gagaagtgtg cccatgaaca tgaagaaatg aagaacctag
1201 aagccattgt tcaagaaata aaaccaactg cctcatagg agttgctgca attgggtggg
1261 cattctcaga acaaattctc aaagatatgg ctgccttcaa tgaacggcct attatttttg
1321 ctttgagtaa tccaactagc aaagcagaat gttctgcaga gcagtgtctac aaaataacca
1381 agggacgtgc aatttttgcc agtggcagtc cttttgatcc agtcactctt ccaaattggac
1441 agaccctata tcctggccaa ggcaacaatt cctacgtgtt ccctggagtt gctcttgggtg
1501 ttgtggcgtg tggattgagg cagatcacag ataataatgtt cctcactact gctgaggtta
1561 tagctcagca agtgtcagat aaacacttgg aagaggggtcg gctttatcct cctttgaata
1621 ccattagaga tgtttctctg aaaattgcag aaaagattgt gaaagatgca taccaagaaa
1681 agacagccac agtttatcct gaaccgcaaa acaaagaagc atttgtccgc tcccagatgt
1741 atagtactga ttatgaccag attctacctg attgttattc ttggcctgaa gaggtgcaga
1801 aaatacagac caaagttgac cagtaggata atagcaaaca tttctaactc tattaatgag
1861 gtcttttaac ctttcataat ttttaaagggt tggaatcttt tataatgatt cataagacac
1921 ttagattaag attttacttt aacagtctaa aaattgatag aagaatatcg atataaattg
1981 ggataaacat cacatgagac aattttgctt cactttgcct tctggttatt tatggtttct
2041 gtctgaatta ttctgcctac gttctcttta aaagctgttg tacgtactac ggagaaactc
2101 atcattttta tacaggacac taatgggaag accaaaatta ctaataaatt gaaataacca
2161 acattaaaac tcataattat tttgttgacc attttggttaa aatctacttt tc
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(SEQ ID NO: 7)

Fig. 29

CCTGAAAACACTTTATAACGGGGTAGGGGCAATTATACATAGCAAACGCCGTCAACATTT
AAACTCTAATTTAAACATTTAATTCTTCAGAATTAATACACACAGATGCTATCATGGGGG
GGGGGAGGCGTGCAGCCCCCATCGGGACCGGGTTTGTGACAACTTACTTACAACCTTTATTA
CATCCTTTTATTTACTGGTCCAGGCGCCGGAGCATGGAAAGATATACAGCGTGGAGTAAA
CACATTCATCCTGGGTGAGGAGTTCTGGCAGGAGACACTGCTTTTCAACATTAAAAATGT
ATAAGGTGTTTAGCAAAAGTTACAGAAAACGGACCAAATGAGCAAGTTTATTTTGTTAGA
AAATTCCACTTTCGTGGGGTTCGCTGATGTGCTCGGGTTGCAAGGGAATGCTTCCGG

(SEQ ID NO: 8)

Fig. 30

```
1 gttgcagagc agtactgccg ggaacaagaa actgcagcgg gcgctagagg ggcggacctg
61 aggtcgcgga ttccgaagcc ccggaggcag attccgagtg cagtgggtag gaggctgtcc
121 tccgggcctc gccgaccatc ctgcggacgg actgggcgtg gccggaggaa ctgtcccga
181 gctgtggggc ctttcatttg gccttgggaa gagcagcagg agaaggcggg gctcctcccc
241 acgtttcggc cgaagtggct gcagagctga aggggtgggg cctcggggta gcccggtgag
301 tggatcctgt cctctctcct cagccctgga ccatagccag cacacactga ggcaggaatg
361 gccccgagac ctccgacggc caagccccag gagtcggtga cattcaaaga tgtggctgtg
421 aacttcaccc aggaagaatg gcaccacgtg ggccctgccc agaggagctt atacagggat
481 gtcattgctg agaactacaa ccacctggtg tcgctcgggt atcaagtctc caagccagag
541 gtgatcttca aattggagca aggagaagag ccatggatat cagagaaaga aatccaaaga
601 cttttctgtc cagactggaa gaccaggcct gagtcctcac ggagtcctca gcaggcgta
661 tctgaagtat tcctcagaac aaatgtttta tcacacacca caatagggtga tatctggaat
721 gtcgctatcc aggggcatca ggaaagtggg agaagacatc tggggccaga ggcattcttc
781 cagaagaaaa taaccactct agagaaaaaa attgagcaaa acaaagttgg tgaagactct
841 agtttgagca cagacttggt tccacaactg gacatttctt caagtataag gcccagtgac
901 tgtaaaacat ttggaaataa tttggaacac aattcagaac tagttactca gagtaatatc
961 cttgctaaaa agaagcctta taagtgtgat aaatgtagga aatcatttat tcatagatca
1021 tcaactaata aacacgagaa gattcataaa ggcgatcctt actccaatgg tacagaccaa
1081 ggagctcagt ctggaaggaa acaccatgag tgtgcggact gtgggaaaac cttcctctgg
1141 agaacacagc tcacggagca ccagagaatt cactcggggg aaaaaccctt tgagtgtaat
1201 gtgtgtggaa aggccttcag gcacagctcg tcccttggtc agcatgaaaa cgcacatata
1261 ggagagaagc cctatcagtg tagcctctgt gggaaagcct tccagcgcag ttcattctct
1321 gttcaacacc agagaatcca cacgggagag aagccctatc gctgcaatct ctgtgggagg
1381 tcattcaggc acagcacgtc cctcacgcaa catgagggtga cccacagtgg ggagaaaccc
1441 ttccagtgtg aggaatgtgg gaaggccttt agcaggtgtt cttcccttgt ccagcatgag
1501 aggaccata caggagagaa gcctttcag tgcagcattt gtgggagggc atttggtcag
1561 agcccatccc ttataaaca tatgaggatt cataaaagaa gcaaacccta ccaaagtaac
1621 aacttcagcc tggcttttgt gcctaacact cctcttcctc aaggtgaagg cctgcttact
1681 gaagtaaagt cgtaccattg taatgactgt gggaaagact tcggtcacat tacagacttc
1741 tctgagcacc agaggctcca cgctggggag aattcctacg gctctgaaca gacccttctt
1801 ggtcagcagt ccctgtctca tccccgagag aaaccctatc agtgcaacgt atgtgggaaa
1861 gcttttaaaa ggagtacaag ttttatagag catcatcgaa ttcacactgg agagaaaccc
1921 tatgaatgta atgagtgtgg ggaagccttc agtcgactct cgtcactcac gcaacacgag
1981 aggaccaca ctggcgagaa accctatgag tgcattgact gcgggaaagc cttcagtcaa
2041 agctcatccc tgattcagca cgaaaggacg cataccggag agaaacccta tgagtgtaat
2101 gagtgtgggc gggccttttag aaagaagacc aatttgcacg accatcagag aactcacact
2161 ggagagaaac cctatgcttg caaggagtgt gggagaaact tcagccggag ctccgccctt
2221 actaaacacc accgagttca cgcccggaat aaactgcagg aaagctaaac aatgggatgg
2281 ggaggaggca cggccgaaca tctgcttcca acccagtgtc agaggattct gaaagtctga
2341 gaatgtaatt atgtgttttg acactgtgta tagagaaaac tgccactaga agaaaaaaat
2401 tttaaattaa agccattctt tcatacctta ttacaggctt cttgtagaac tacgtacggc
2461 atatgtagtc gtttggaat gatgtgacct tactaaagct tttgaatata tgtgtgcaga
2521 gtcaccaagt tttaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa
2581 aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaa
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(SEQ ID NO: 9)

Fig. 31

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1 maprpptakp qesvtfkdva vnftqeewhh vgpqgrslyr dvmlenynhl vslgyqvskp
61 evifklegge epwisekeiq rpfcpdwktr pessrspqgg vsevflrtnv lshttigdiw
121 nvaigghges grrhlgspeas sqkkittlek kiegknkvged sslstdlvpq ldisssirps
181 dcktfgnnle hnselvtqsn ilakkkpykc dkcrksfihr sslnkhekih kgdpysngtd
241 qgaqsgrrkhh ecadcgktfl wrtqltehqr ihtgekpfec nvcgkafrhs sslgqhenah
301 tgekpyqcs1 cgkafqrsss lvqhqrhtg ekpyrcnlcg rsfrhstslt qhevthsgek
361 pfqckecgka fsrccslvqh erthtgekpfc ecsicgrafg qspsslykhmr ihkrskpyqs
421 nnfslafvpn tplpqgegll tevksyhcnf cgkdfghitd fsehqrllhag ensygsegtl
481 lgqgslshpr ekpyqcnvcg kafkrstsf1 ehhrhtgek pyecnecgea fsrlssltqh
541 erthtgekpy ecidcgkafs qssslqher thtgekpyec necgrafrrk tnlhdhqrth
601 tgekpyacke cgrnfsrssa ltkhhrvhar nklqes

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(SEQ ID NO: 10)

Fig. 32

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1 ctggcagcgg actttgaata gggaagtttt gcaggggtta cgcttgcagt cagtccgctg
61 tttgcaaata ttgcgtgggc tcggcgcgct gcgggctgcg ggagggtccg gaccggcgct
121 ccgattgcag cgccatccag tttgcatgaa actttcacct gcgctcccgg gaacagtttc
181 tgctcggact cctgatcggt cacctccctg ttttcccagc agcgaggact gtcttttcca
241 acccgacatg gatgtgctcc caatgtgtag catcttccag gaactacaga ttgtgcacga
301 aacgggctac ttctcggctc tgccgtccct ggaggaatat tggcaacaga cctgcctgga
361 gttggaacgc tatcttcaga gtgagccctg ctacgtgtca gcctctgaga taaaatttga
421 cagccaggaa gacctgtgga ccaaattcat tctagctcgg gagaagaagg aggaatcaga
481 actgaagatt tcttctagtc cccagagga ctctctgata agctccagct ttaattataa
541 cttagagacc aatagcctga actctgatgt cagcagttag tcttcggaca gttcagagga
601 actttcaccc acgaccaaatt ttacctctga tcccatgtgt gaagtcttag tcaattcagg
661 aaatctgagt tcctccgtca tttccacacc tccatcttct ccagaagtga acagggaatc
721 ttctcaacta tggggctgtg ggccaggaga cctgccctca cctgggaagg ttcgaagtgg
781 gacctctggg aagtctgggtg acaagggtaa tggcgacgcc tcccagatg gcagaagacg
841 ggtacatcgg tgccacttta atggctgcag gaaagtgtac acgaaaagct cccacttgaa
901 agcacatcag cgactcaca caggagaaaa gccttacaga tgctcatggg aagggtgtga
961 gtggcggtttt gcaagaagtg atgagttgac cagacacttc cgaaagcata ccggtgccaa
1021 gcctttttaa tgctccact gtgacaggtg tttctccagg tctgaccacc tggccctgca
1081 catgaagagg cacctctgaa ggagcagagg gacgaatcct gtaggctaaa agaggcttcc
1141 aggctaagag gcggccatgg aaggagggat gcctgtaaca gccaaagcat gccatthtgc
1201 ttcctatcca gttacctcca ggggcctctc tttggaaggc cttttgaggg ctacaaaagt
1261 catgtcagga gtggcatagc acctatgggt catgggtgtt gggtgacccc ggactcacca
1321 ctgggttccta acctctctgag aggtcttaag cttttggccg tgagcatgag cactgagaat
1381 gttagtgggt gggatgggtg tggtgaggat ctattactga ctgtatgggt aggcagactt
1441 tttttttctc cccctatgtg gtatcaaata actcgcggtc gcagtcttta agaaatagaa
1501 atggcttcca aaagagctct ggtcatcctg gccaaaggag cagtcgacgc ggccgc

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(SEQ ID NO: 11)

Fig. 33

1 ggatgagaca gaaggataga gaggaggaga gagagagaga gaagagaagc aaccagaaat
61 aggcagccaa taaaaaggag ccgcacttat ctgaagcctc aaggggcctg agccagggtcc
121 ctgtttgatg gcagttatga aaaattacct cctcccgatc ctggtgctct ccctggccta
181 ctactactat tctacaaatg aagagttcag accagaaatg ctccagggaag agaaagtgat
241 tgtcactggg gccagcaaag ggattggaag agaaatggca tatcatctgt caaaaatggg
301 agcccatgtg gtattgactg ccagggtcga ggaagggtctc cagaaggtag tgtctcgctg
361 ccttgaactc ggagcagcct ctgctcacta cattgctggc actatggaag acatgacatt
421 tgcggagcaa tttattgtca aggcgggaaa gctcatgggc ggactggaca tgcttattct
481 aaaccacatc actcagacct cgctgtctct cttccatgac gacatccact ctgtgcgaag
541 agtcatggag gtcaacttcc tcagctacgt ggtcatgagc acagccgcct tgcccatgct
601 gaagcagagc aatggcagca ttgccgtcat ctctccttg gctgggaaaa tgaccagcc
661 tatgattgct ccctactctg caagcaagtt tgctctggat gggttctttt ccaccattag
721 aacagaactc tacataacca aggtcaacgt gtccatcact ctctgtgtcc ttggcctcat
781 agacacagaa acagctatga aggaaatctc tgggataatt gacgccctag cttctcccaa
841 ggaggagtgc gccctggaga tcatcaaagg cacagctcta cgcaaaagcg aggtgtacta
901 tgacaaattg cctttgactc caatcctgct tgggaacca ggaaggaaga tcatggaatt
961 tttttcatta cgatattata ataaggacat gtttgtaagt aactaggaac tcctgagccc
1021 tggtgagtgg tcttagaaca gtccctgcctc atacttcagt aagccctacc cacaaaagta
1081 tctttccaga gatacacaaa ttttggggta cacctcatca tgagaaattc ttgcaacact
1141 tgcacagtga aaatgtaatt gtaataaatg tcacaaacca ctttgggcct gcagttgtga
1201 acttgattgt aactatggat ataaacacat agtggttgta tcggctttac ctcacactga
1261 atgaaacaat gataactaat gtaacattaa atataataaa ggtaatatca acttcgtaaa
1321 tgcaaaaaaa aaaaaaaaaa aaaaaaaaaa

(SEQ ID NO: 12)

Fig. 34

1 mavmknyllp ilvlflayyy ystneefrpe mlqgkkvi vt gaskgigrem ayhlskmgah
61 vvtarseeg lqkvvsrcl e lgaasahyia gtmedmtfae qfivkagklm ggldmlilnh
121 itqtslsflh ddihsrvrrvm evnflsyvvm staalpmlkq sngsiaviss lagkmtqpmi
181 apysaskfal dgffstirte lyitkvnvsi tlcvlglidt etamkeisgi inaqaspkee
241 caleiikgta lrksevydyk spltpillgn pgrkimeffs lryynkdmfv sn

(SEQ ID NO: 13)

Fig. 35

1 gagacggacg gtggccaccc caagacgcgc cccagcccgc catggcccgg atcctccggg
61 catcctgcct tctgtccctg ctccctggccg ggtttgttcc gccggggccgg ggacaagaga
121 agtctaagac agactgccat ggcggtatga gtggtaccat ctacgagtat ggagccctca
181 ccatcgatgg ggaggaatac attcctttta agcagtatgc aggcaaatac atcctctttg
241 tcaacgtagc cagctactga ggtctgacag accaatacct tgaactgaat gcactacaag
301 aagaacttgg gccatttggc ttggtcattc tgggcttccc ttccaaccaa tttggcaaac
361 aggagccagg cgagaactcg gagatactcc ccagtctcaa gtaggttcga ccaggtgggg
421 gctttgtgcc taatttccag ctctttgaga aaggagatgt gaacggggag aaagagcaga
481 aattctacac tttcctgaag aactcctgcc ctcccactgc agaactcctg ggctcacctg
541 gccgcctctt ttgggaaccc atgaagatcc atgacatccg ctggaacttt gagaagttcc
601 tgggtggggcc agatggcata ccggttatgc gctggtagca ccggaccaca gtcagcaacg
661 tcaagatgga catcctgtct tacatgaggg ggcaggcagc cctgagcgcc aggggggaagt
721 aactgatgcc cccaccctac ccctaccccc tgcccatcat gcaagggccg aggaggggct
781 cttcaggaag gaagccacat tcccagtcac tctaccccca cccagattc tctttcttat
841 tacataaaaag acaagcctgg cacaactgtg tgtctgaacc actgtggaca cgtgacaatt
901 gtcccagtggt gtgcatgggt acacagccac gtatctgcct gcttgaaacc cagggatggg
961 ccatctgtgt ttacggcttg gcacaacacc ctcatatttt tttcagcttt ctgttccaaa
1021 tgagcccaaa ggaaacacaa gttctaggtc caatgggttct gctcaaacct gaacatcatt
1081 cttggggcca gcatctccca catgcccaca ctacacacca ccagcctcct tcttccttcc
1141 tgaaggaccc tcctgagccc ccaagcccat cccacagtgc tcctgagacc agccaagaca
1201 actgtgagcg cgatggccgt gtaccccagg tcaggggtgg tgtctctatg aaggaggggc
1261 ccgaagccct tgtggggcggg cctcccctga gcccgctctgt ggtgccagcc cttagtgcac
1321 tcaggcttag gctcccaggc agggacacta ccccgcgccc tctggaggac atgctatcct
1381 ctcactctgt ccactgggtat ctcaacaccc ccatctgccc agtaaagggtc tttctgc

(SEQ ID NO: 14)

Fig. 36


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1 marilrascl lslllagfvp pgrgqekskt dchggmsgti yeygaltidg eeyipfkqya
61 gkyilfvnva syugltdqyl elnalqeelg pfglvilgfp snqfgkqepg enseilpslk
121 yvrpgggfvp nfqlfekgdv ngekeqkfyf flknsdppta ellgspgrlf wepmkihdr
181 wnfekflvvp dgipvmrwyh rttvsnvkmd ilsymrrqaa lsargk

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(SEQ ID NO: 15)

Fig. 37

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1 ctgtaaagcc ccgcctcagc cccgccccct cgtccccgcc gccgcggggcc aagccgggagc
61 aagctaggag gcagccgggt ctgcggaggc aacatgtacc ggctcctgtc aagcgtgaca
121 gctcgggctg cggccaccgc aggcccagcc tgggacggag ggcggcgccg ggcgcacagg
181 cgaccgggccc tgcctgtgct gggccttggt tgggcccggc gcctggggct cgggctgggg
241 ctggctctcg gcgcgaagct ggtggtcggg ctgcggggcg ccgtcccatc tcagtcctcc
301 gcggaccccc aggcgctccg cactaccgag ttatcgcacg agcaggccct gagcccgggg
361 agcccgcaca cgcctgcgcc gccagcagcc aggggcttct ccagagccat cgagagcagc
421 cgcgatctgc tacaccggat caaggatgag gttggtgccc ccggcatcgt ggttggagtt
481 tctgtagatg gaaaagaagt ctggtcagaa ggtttaggct atgcagacgt ggagaaccgc
541 gtaccctgta agccagaaac ggtcatgaga atcgcaagca tcagcaaaaag cctcaccatg
601 gtggctctgg ctaaactgtg ggaagcaggg aagctggatc tggaccttc tgtgcagcac
661 tatgttcccg agttcccaga aaaagaatac gagggtgaaa aggtttctgt cacaacaaga
721 ttactaattt cgcatttaag tggaattcgt cattatgaaa aggacataaa gaaagtgaag
781 gaagagaaag cttataaagc cctgaagatg gtgaaaggga ccccgccacc atctgaccaa
841 gaaaaagaac tgaaagaaaa gggaggcaaa aacaacgaaa agagcgacgc accgaaagcc
901 aaagtcgagc aggacagcga agccagatgc cgcagcgcca agccaggcaa gaaaaagaat
961 gacttcgaac aaggcgaatt gtatttgaaa gaaaagtgtg aaaattcaat tgaatcacta
1021 agattattta aaaatgaccc ttatttcttt aaacctggta gtcagttttt gtattcaacg
1081 tttggctata ctctgctggc agccatagta gaaagagctt caggatataa atatttggat
1141 tatatgcaga aaattttcca tgatttggac atgctgacaa ctgtccagga ggaaaacgag
1201 ccagtgattt acaacagagc aagattttac gtgtacaata aaaagaaacg tcttgtcaac
1261 acaccttacg tggataactc ctataaatgg gctgggtggg gatttctgtc cacagtgggt
1321 gacctcctga aatttggaaa cgcaatgctg tatggctacc aagttgggca gtttaagaac
1381 tcaaatgaaa atctcttgcc tggatatctc aagccagaaa caatggtgat gatgtggacc
1441 ccagtcccta acacagagat gtcctgggat aaagagggga aatatgcaat ggcgtgggg
1501 gtggtagaga agaagcaaac gtacggatcc tgcaggaagc agcggcacta cgcctcacat
1561 actggagggt ctgtgggtgc cagtagtgct ctgctgggtc ttcctgaaga actggactca
1621 gaggccgtaa ataacaaggt tccccacga ggaataatcg tctctatcat atgcaacatg
1681 cagtctgtgg ggctcaatag cactgctttg aagatcgctc tggaatttga taaagacaga
1741 gctgactaat cctaatggca gcacagggtc acagtgagcc ttccattctt tgaaatgttg
1801 acgttcccaa atacataaac cctttaagga tacatttctg tcccaaatac ataaaccctt
1861 taaggatata tttgtaatag agtacagtta aatgtggaga attatgtacc tctaattgct
1921 taattttgta actgcctttt tattggacaa ttagttcttt acactcaggg aaataacagt
1981 tgtttctact ttttaaaaaa aatgtttact cttgaaataa aatcttctga t

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(SEQ ID NO: 16)

Fig. 38

1 myrllssvta raaatagpaw dggrrgahrr pglpvlglgw agglglglgl algaklvvgl
61 rgavpiqspa dpeasgttel sheqalslgs phtpappaar gfsralessg dlhrikdev
121 gapgivvgvs vdgkevseg lgyadvenrv pckpetvmri asisksltmv alaklweagk
181 ldldlpvqhy vpefpekeye gekvsvttrl lishlsgirh yekdikkvke ekaykalkmv
241 kgtppppdqe kelkekggkn neksdtpkak aeqdsearcr sakpgkkknd feggelylke
301 kfensieslr lfkndplffk pgsqflystf gytllaaive rasgykyldy mqkifhdldm
361 lttvqeenep viynrarfyv ynkkkrlvnt pyvdnsykwa gggflstvgd llkfgnamly
421 gyqvgqfkns nenllpgylk petmvmmwtp vpntemswdk egkyamawgv vekkqtygsc
481 rkqrhyasht ggavgassvl lvlpeeldse avnnkvpprg iivsiicnmq svglstalk
541 ialefdkdra d

(SEQ ID NO: 17)

Fig. 39

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1  aggctggnag ccacacttgg gaaaggaagc atggcgtgcg agctgcgagc tgtgttgctg
61  tggggccgcg ggctgcagac tgtactgcgg gccccgcgcg tggctggagt tcggcgagga
121 aagccagttc tgcaccttca gaagactaca gtccagttta ggggccccac acaaagtctg
181 gcttcaggga tctctgcagg acagttatac agcacacagg cagccgagga caaggaggag
241 gagagcctgc actccatcat cagcaacact gaggcagtgc ggggttctgt ctccaaacat
301 gagttccagg cagagacaaa gaaacttttg gacatcgtag cccgttctct gtactcagaa
361 aaagaggtgt tcatacgaga gctcatctcc aatgccagtg atgccttgga gaaactgcgg
421 cacaagctgg tgtgtgaagg ccaggtgctg ccagaaatgg agattcacct tcagacggat
481 gccaagaagg gcactattac cattcaggac actggcattg ggatgacaca ggaggagctg
541 gtgtccaacc ttggcacaat tgccagatcg ggggtcaaagg ccttcctgga agcactgcag
601 aaccaggcag agaccagcag caagatcatt ggtcagtttg gagtgggttt ctattcagcc
661 ttcattgtag ctgacaagg tgaagtctat tctcgatcag cagctccaga gagcccaggt
721 taccagtggc tttcagatgg ttctggagtg tttgaaattg ccgaagcttc aggagttaga
781 cctgggacca aaataatcat ccacctcaag tcagactgta aagattttgc cagcgagtcc
841 cgggtacaag atgtggtaac aaagtacagt aactttgtca gcttccccct gtacctaat
901 ggaaagcgga ttaacacttt gcaggccatc tggatgatgg acccaaagga catcagtga
961 tttcagcatg aggaattcta ccgttatatt gctcaggctt atgataagcc ccgcttcact
1021 ttgcactaca agacggacgc accactcaac atccgcagca tcttctatgt gccagagatg
1081 aaaccatcca tgtttgatgt gagcagggag ctgggctcca gcgtggcact gtatagccgc
1141 aaggtcctca tccagaccaa ggctgcagac atcctgcca agtggctgcg cttcattcga
1201 ggtgtggtgg atagtgagga cattccccctg aacctcagca gagagctcct gcaggagagt
1261 gcgctcatcc ggaaactccg ggatgttcta caacagagat tgatcaagtt cttcattgac
1321 cagagtaaaa aagatgctga aaaatacgca aagttttttg aagattatgg cttgttcatg
1381 agggagggca ttgtgaccac tgcagagcaa gacatcaagg aggatattgc aaaactgcta
1441 cggtatgagt cctcagccct gcctgctggg cagctgacca gcttaccaga ctatgccagc
1501 cgaatgcagg ctggcaccgc caacatctat tacctgtgtg cccctaaccg tcacctggct
1561 gaacattcac cctattacga agccatgaag cagaaacata ctgagggtgct cttctgctat
1621 gagcagttcg atgagcttac tctgctgcac ctgagggagt ttgacaagaa gaagctcatc
1681 tctgtggaaa cagacatcgt cgttgatcac tacaaggagg aaaagtttga ggacacatct
1741 ccagctgatg agcgcctctc ggagaaggaa acagaagatc taatggcgtg gatgagaaat
1801 gcactagggt cccgtgtcac caatgtgaag gtgactttcc gcctagacac ccacctgcc
1861 atgggtgaccg tgctggagat gggggctgct cggcatttct tgcgtatgca gcagctggcc
1921 aagaccagag aggaacgtgc ccaactgcta cagcccacac tggagatcaa ccccaggcac
1981 aactgataa agaagctctg ccagctgagg gagagcgagc cggagctggc ccagctgctc
2041 gtggatcaga tctatgagaa tgccatgata gcagcaggac tcgttgatga ccccggggcc
2101 atggtcggcc gcctgaacga ccttttggtc aaggtcctgg agaaacactg acagccaaga
2161 cactggattt agtgtcaacc caggtcttct cgggtgataa tggacctgcc tggggaggca
2221 ggacttaata cacaacagt gccaccaact gcttgagctc agctttattt acttcaatta
2281 aacagtattt cttagtc
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(SEQ ID NO: 18)

Fig. 40

1 acelravllw grglqtvira palagvrrgk pvlhlqkttv qfrgptqsla sgisagqlys
61 tqaaedkeee slhsiisnte avrgsvskhe fgaetkklld ivarslysek evfirelisen
121 asdaleklrh klvcegqvlp emeihlqtda kkgtititqdt gigmtqeelv snlgtiarsg
181 skaflealqn qaetsskiig qfgvgfysaf mvadkvevys rsaapespgy qwlsdgsqvf
241 eiaaeasgvrp gtkiiihlks dckdfasesr vqdvvtkysn fvsfpilyng krintlqaiw
301 mmdpkdisef qheefyryia qaydkprftl hyktdaplmi rsifyvpemk psmfdvsrel
361 gssvalysrk vliqtkaadi lpkwlrfrir vvdseidpln lsrellqesa lirkldvllq
421 qrlikffidq skkdaekyak ffedyglfmr egivttaeqd ikediakllr yessalpagq
481 ltslpdyasr mqagtrniyy lcapnrhlae hspyyeamkq khteulfcye qfdeltllhl
541 refdkkkkis vetdivvdhy keekfedtsp aderlseket edlmawmrna lgsrvtnvkv
601 tfrldthpam vtvlemgaar hflrmqqlak tgeeraqlq ptleinprht likklcqlre
661 sepelaqliv dqiyeenamia aglvddpram vgrlndllvk vlekh

(SEQ ID NO: 19)

Fig. 41

```
1  ctccgcgtcc  gccccgccac  cgtgccagcc  atggagcccc  gagccccccg  ccgccgacac
61  acccaccagc  gcggctacct  gctgacgcgg  gacccgcata  tcaacaagga  cttggctttt
121 actctggaag  agagacagca  gttgaacatt  catggattgt  tgccgccctg  catcatcagc
181 caggagctcc  aggtccttag  aataattaag  aatttcgaac  gactgaactc  tgacttcgac
241 aggtatctcc  tgttaatgga  cctgcaagac  agaaatgaga  agctcttcta  cagcgtgctc
301 atgtctgatg  ttgaaaagtt  catgcctatt  gtttacaccc  ccaccgtggg  cctcgcatgc
361 cagcagtaca  gtttggcatt  ccggaagcca  agaggcctct  ttattagtat  ccatgacaaa
421 gggcacattg  cttcagttct  taatgcatgg  ccagaggatg  tcgtcaaggc  tattgtggta
481 actgatggag  agcgcatact  tggcttggga  gaccttggct  gtaatgggat  gggcatccct
541 gtgggtaaac  tggccctgta  cacggcatgt  ggaggggtga  acccacaaca  gtgtctaccc
601 atcactttgg  atgtgggaac  agaaaatgag  gagttactta  aggatccact  gtacatcggg
661 ctgcggcacc  ggcgagtcag  aggccctgag  tatgacgcct  tcctggatga  gttcatggag
721 gcagcgtctt  ccaaatatgg  catgaattgc  cttattcagt  ttgaagattt  tgccaatcgg
781 aatgcatttc  gtctcctgaa  caagtatcga  aacaagtatt  gcacatttaa  cgatgatatt
841 caaggaacag  cgtctgttgc  ggttgccggg  ctccttgtag  ctcttcgaat  aaccaagaac
901 aagctctctg  atcagacagt  gctgttccag  ggagctggag  aggctgcctt  ggggatgtct
961 cacttggttg  ttatggccat  ggagaaagaa  ggtttatcaa  aggagaatgc  tagaaagaag
1021 atatggttgg  ttgactcaaa  aggactaata  gttaagggtc  gtgcatctct  cacagaagag
1081 aaagagggtg  ttgcccata  acatgaagaa  atgaagaatc  tggaagccat  tgttcaaaag
1141 ataaaacca  ctgccctcat  aggagttgct  gcaattgggt  gtgctttcac  tgaacaaatt
1201 ctcaaggata  tggctgcctt  caacgagcgg  cccatcatct  ttgctttgag  taatccgacc
1261 agcaaagcgg  agtgctctgc  agagcagtgc  tacaagggtg  ccaagggacg  tgcaatcttt
1321 gccagcggca  gtccttttga  tccagtcact  ctcccagatg  gacggactct  gtttcctggc
1381 caaggcaaca  attcctacgt  gttccctgga  gttgctcttg  gggtggtggc  ctgaggactg
1441 agacacatcg  atgataaggt  cttcctcacc  actgctgagg  tcatactca  gcaagtgtca
1501 gataaacacc  tgcaagaagg  ccggtcttat  cctcctttga  ataccattcg  aggcgtttcg
1561 ttgaaaattg  cagtaaagat  tgtgcaagat  gcatacaaag  aaaagatggc  cactgtttat
1621 cctgaacccc  aaaacaaaga  agaatttgtc  tcctcccaga  tgtacagcac  taattatgac
1681 cagatcctac  ctgattgtta  tccgtggcct  gcagaagtcc  agaaaataca  gaccaaagtc
1741 aaccagtaac  gcaacagcta  ggatttttaa  ctttattagt  aaaatcttga  agttttcatg
1801 atctttaagg  gtcagaatct  tttatgatga  ttcatagtgt  gcttagaata  aggtgatttt
1861 agtttaataa  caaactcatg  ggagtctatt  aggataaatt  aggataaatt  tcacaccaga
1921 cggttttgtt  tcacttactg  tggatattta  tgttttctct  tgtgattatt  ctctttatga
1981 attctgttta  aaagctactg  tacctgctgc  tgagaaagtc  ctcactgata  tgtaggaagc
2041 taatggaaga  cccacactag  taataaatta  atatagcata  acttgattac  atttaatgcc
2101 tacagttctt  tcttgactat  tttgctaaaa  tctcttaaac  agaaaagata  aacacaaact
2161 tgggtatagc  tgaactttta  ctaaacagaa  gcactacttt  gttgcctaga  gaaaatcttc
2221 tcaggacttt  tattccaggc  ctccgttagc  tttgttctct  ttgtacacct  gactcaacac
2281 ctctgagaaa  gctcactgct  gtttacagta  ccctgcgtag  ccttagctca  tcagcgtctt
2341 ctgtcgttgt  tatgttatat  cccatagagt  agagctctcg  ttcccaaaca  ctccatagaa
2401 acaccctttc  tcactctctg  gcaacccttg  gccctgctga  gatactcggg  tgtttttgtt
2461 agtgtagcct  gggcagtgag  aagggctgca  ggggggtcct  tgagacgggg  ccctgggaac
2521 ccacctctga  gacaaggagg  tcagatgcc  gacagtgggt  ccagacaag  ctcaggctcc
2581 atgaagatca  cctgctctaa  tgtccctgtg  cttagtctcg  aggactgaga  gctcatggca
2641 tgagtaaata  catctctaat  gcctaccttt  ctatcagata  ttaaaatatg  ttaattacca
2701 aaaccattct  ctgagaaaaa  aaaaccaagc  ctttcccagg  tggattaat  ttactggaca
2761 cgttgataat  ggcatagcta  gaaacagcct  taactcctaa  gctcagggtc  aagaacattc
2821 tgtgtatcta  gagactcctg  actttgaagt  tgctttaaag  cctgtgtggg  tttgcggcgg
2881 gcagctctgt  acagtgagct  ctttgaagggt  gaggggtgag  aagctttcag  gtgtgagcta
2941 aaagggta  gacttcctaa  tgacaacttg  tgactaacgg  tttcttcagt  gtagtatttt
3001 gagaaagatt  cagaatttct  atcttttctt  gtatgtttcc  atgttgtcag  gtagtgttaa
3061 atgaatgtat  ttacctatgc  aaaagattta  tttaaagccta  gagaat
```

(SEQ ID NO: 20)

Fig. 42


```
1  ttccccgcgct tctgctccgc cctccgcagc cctccacagt caccgccgag accagccgtg
61  ttaagctctc tgctctgaag ctgactgact tccatggcag ccgcgaagaa agcagttctg
121 gggccattgg tgggagcagt ggaccagggt accagctcga cacgtttttt ggttttcaat
181 tcaaaaacag ctgaacttct tagtcatcat caagtagaaa taaaacagga attcccaaga
241 gaaggatggg tagaacaaga cccgaaggaa attctgcagt ctgtttatga gtgtatagag
301 aaaacgtgtg agaaacttgg acagctcaat attgatattt ccaacatcaa agccattggg
361 gtcagcaacc agaggggaaac cacagtagtc tgggacaagg tcaccggaga gcctctctat
421 aatgccgtgg tgtggcttga cctaagaacc cagtctactg ttgagaacct tagtaaaaga
481 attccaggaa ataataactt tgtcaagtcc aagacaggcc ttccacttag cacgtatttc
541 agtgcagtga aacttcgttg gtccttgac aacgtgaaaa aggtccaaga ggctgttgaa
601 gaaaatagag ctcttttttg gaccattgat tcatggctta tttggagttt aacaggagga
661 atccatgggg gtgtccactg tacagatgta acaaatgcaa gcaggacgat gctttttaac
721 attcattctt tggaatggga taaagagctc tgcgaatttt ttggaattcc aatggaaatt
781 cttcccaacg ttcggagttc ttctgagatc tatggcctaa tgaaagctgg ggccttgga
841 ggtgtaccaa tatctgggtg tttgggggac cagtctgctg ctttggtggg acaaatgtgc
901 ttccaggatg gacaggccaa aaacacgtat ggaacagggt gcttcttatt gtgcaacacg
961 ggccataagt gtgtattttc tgaacatggc ctctgacaa ccgtagcata taaacttggc
1021 agagacaaac ctgtgtatta tgcgttgga ggttccgtgg ctatagctgg tgctgtaatc
1081 cgctgggctaa gagacaacct tggaattatt aagtcctctg aggaaattga aaaacttgct
1141 aaggaagtag gtacttctta tggctgctac ttcgttccag cattttcagg gttatatgcg
1201 ccttattggg agcccagtgc aagagggatc atctgtggac tctactagtt caccaataaa
1261 tgtcatatcg cttttgctgc actagaagct gtttgtttcc aaaccgcaga gattttggat
1321 gccatgaatc gcgactgtgg aattccactc agtcatttac aggtagatgg aggaatgacc
1381 agcaataaaa ttcttatgca gctacaagca gacattctgt atattccagt agtgaaacct
1441 tccatgcctg aaacaactgc actaggcgct gccatggcag ctgggggctgc agaggggggt
1501 ggtgtgtgga gtcttgaacc tgaggatttg tcagctgtca caatggagcg gtttgaacct
1561 cagatcaatg ctgaagaaag cgaaatccgt tactccacat ggaagaaagc tgtgatgaag
1621 tcaattgggt gggttacaac tcagtctcca gaaagtggta tccataaat aataccacct
1681 cacggatttc caagatgcaa gctttttaat gtgatatgaa aatctgacta ttctgtctca
1741 tagtataatg atgctattca tagactctga tttttttcat aagccactgg ctgcatgatc
1801 ctctaagcag acctatgact tgaaataaag aaagtgcagc agaaagaatc ctccagaaac
1861 atttaatttt tttttaacat tgacagttaa gatcgggtca gtcaccttg aggctgacct
1921 ctgcctccac tgtcatgatg tcctacacta ttcccgttaa ggtctagggt gatttttggt
1981 tcctgtctat tgaaatgtgc cattcagtat attcagatgc tagtggatta cacatgtttg
2041 aggaagaggt tgttactaac ctgttcaaaa tgagtggctt cttgcttggt tgcttttaac
2101 agctcagatg tcttcttttc tatatattag aaggccacaa cattactgga tatttcaaat
2161 ggaaacatct aaagaattgt tggataattg aatttgctaa ttcttggtgc ttaagacatt
2221 tttctgtaca gttgtttgcc caaaattcca acctgtcag gtgttttaca ctgtccact
2281 aactaccata gctttctgtc tggctcttac aggatagaac actttctttt tctgcttttt
2341 tttcatttct cctttttata tttttattct gtatgtataa catacatgcc tatatatttt
2401 atatgctgag agtaacccat ttataaatta agagcacatt atattcaata agttataaga
2461 gggctgggtc taagtggact actatgtata cag
```

(SEQ ID NO: 21)

Fig. 43

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1 maaakkavlg plvgavdqgt sstrflvfns ktaellshhq veikgefpre gwveqdpkei
61 lqsvyeciek tceklgqlni disnikaigv snqrettvww dkvtgeplyn avvwldlrtc
121 stvenlskri pgnnnfvksk tglplstyfs avklrwlldn vkkvqeavee nralfgtids
181 wliwsltggi hggvhctdvt nasrtmlfni hslewdkelc effgipmeil pnvrssseiy
241 glmkagaleg vpihgclgdq saalvggmcf qdggakntyg tgcflcntg hkcvfsehgl
301 lttvayklgr dkpvyyaleg svaiagavir wlrndnlgik sseeieklak evgtsygyf
361 vpafsglyap ywepsargii cgltgftnkc hiafaaleav cfqtreilda mnrdcgipls
421 hlqvddgmts nkilmqlqad ilyipvvkps mpettalgaa maagaaegvg vwslepedls
481 avtmerfepq inaeeseiry stwkkavmks igwvttqspe sgip

```

(SEQ ID NO: 22)

Fig. 44

```

1 tgtcagactc tcgattttctc ctctactccc tcctccgagg aattctgcgc cctgtaactg
61 ttctgccctc cccttttaaag gttgacttgc cctacggcgc tccaccgcgc tccagtcctc
121 ttgcgcctcc tgetcaaccc gctcctgact gccccacgcc gcgtagttcc agcagcaaag
181 cagaaggggtg caccgggaga tggagagcaa agccctgctc ctgggtgggtcc tgggagtttg
241 gctccagagt ttgaccgcct tccgaggagg ggtggccgca gcagacgcag gaagagattt
301 ctacagacatc gaaagcaaat ttgccctaag gaccctgaa gacacagctg aggacacttg
361 tcatctcatt cctggattag cagactctgt gtctaactgc cacttcaacc acagcagcaa
421 gaccttcgtg gtgatccatg gatggacggg aacgggaatg tatgagagtt ggggtgccaa
481 acttgtggcc gccctgtaca agagagaacc tgactccaat gtcattgtag tagactgggt
541 gtatcggggc cagcaacatt atccagtgtc agctggctac accaagctgg tgggaaatga
601 tgtggccaga ttcataact ggatggagga ggagtttaag tacccttag acaacgtcca
661 cctcttaggg tacagccttg gagcccatgc tgctggcgta gcaggaagtc tgaccaataa
721 gaaggtcaat agaattactg gtttgatcc agctgggcct aactttgagt atgcagaagc
781 cccagtcgc ctttctcctg atgacgctga ttttgtagat gtcttacaca catttaccag
841 ggggtcacct ggtcgaagta ttgggatcca gaaaccagtg gggcatgttg acatttatcc
901 caatggaggc actttccagc caggatgcaa cattggagaa gccatccgtg tgattgcaga
961 gagaggactc ggagacgtgg accagctggg gaagtgcctc catgagcgtc ccattcatct
1021 cttcattgac tcctgctga atgaagaaa cccagcaaa gcatacaggt gcaactccaa
1081 ggaagccttt gagaaagggc tctgcctgag ttgtagaaag aatcgctgta acaatctggg
1141 ctatgagatc aacaaggtca gagccaagag aagcagcaag atgtacctga agactcgctc
1201 tcagatgcc tacaagtggt tccattacca agtcaagatt cacttttctg ggactgagaa
1261 tggcaagcaa cacaaccagg ctttcgaaat ttctctgtac ggcacagtgg ccgagagcga
1321 gaacattccc ttcaccctgc ccgaggtttc cacaataaaa acctactcct tcttgattta
1381 cacggagggtg gacatcgag aactgctcat gatgaagctt aagtggatga gcgactccta
1441 cttcagctgg cccgactggg ggagcagccc cagcttcgtc atcgagagga tccgagtga
1501 agccggagag actcagaaaa aggtcatctt ctgtgctagg gagaaagttt ctcacttgca
1561 gaaggggaaag gactcagcag tgtttgtaga atgccatgac aagtctctga agaagtctgg
1621 ctgacactgg acaaacaaac aagagaagaa agcatccgag ttctttgaag acagaagaaa
1681 acaaagtaaa ttaatttaa aaaaataata cccttggttg ggtggttgaa agtgggtttt
1741 cctgagtatt aatcccagct ctatcttggt agttaaacag aagacagtct caaatattaa
1801 acgggtggcta acccagggtg aggaatctaa tggcccatag caggctctcc agcatcagaa
1861 gacatcaggc aggagaaaca tgctgtcttg tatcccttaa gaaggaatca tttgttccca

```

Fig. 45A

1921 acaatataag actccatcat gtgacccatt tgggtcatggt ctaaaattag taagaactct
1981 gaggttttat attgagacct tttcaaagtt ttctcaaagt ctaatataga caatattttt
2041 tgtggcatga gtcagggtcca tttcttttagc ggttgaaaca cctggccttt gcaactagtt
2101 tttttttacc attgggatat attcccccca ccaaaaaaaaa aaaaaaaaaa aagtaaccag
2161 gaacgtgtga cttggcaaaa gcagttgaag acatggctca tgaagtcctg acccttggtc
2221 ccaccacaac aaagtacaag tcaacagaga tacaaaacct agactgagta attcttaata
2281 gacttgaatt tttatggctt aatccttcta tcttttaaat atttgtcaga tattttaaca
2341 ttgttctctg gatagatgtt gaaaatgagc ttataagctg ggcaatgggt gcgctcacct
2401 ttaatcccag cacttggcag gcagaggcag gcggatttct gagttcaagg ccagcctggg
2461 ttacagagtg agttccagga catccagagc tacacagaga aaccctgtct cgggaaaaaa
2521 aaaaaaaaaa aagaagaagg agaagaagag ggagggaggg agggagggag ggagggaggg
2581 aggaaggaag gaaggaagga aggaaggaag gaaggaagga aggaaggaag gaagaaagaa
2641 agaaagaaag aaagaaagaa agaaagaaag aaagaaagaa agaaagaaag aaagaaagaa
2701 aatgagcttg taattgaggt gacacataaa ttttgctgaa agacaaaaat gcctaggttg
2761 attttacttc tcttttttgc tttcttgaaa aaagtcacaa ttgtcccatg ctgtaaccaa
2821 gtctggccta gaactaaact atgtatttca ggctggcctt gaactctcaa ccactctgcc
2881 ttagcttcct gtgtcctggg agcttgagaa ccgtaatttt attatcagat ttttcttact
2941 tgttttcatc aatttgaaat gcccaatatc caatactttg tatttcattt gagactcatc
3001 tccgccatgc ctctgtcaca cttctaacac atcacattaa tttctagttt agatgtgatc
3061 aagttcaaat tctgcactgt gcaaagtaca agtttttagag caggaccatt ttttttatca
3121 cataaaagtt gaaattacta gaaaatgtgc atatggatgc ttgtaaactg ctgtgcaaag
3181 agaagagccc tcaactgtaa tagctataga aagtaccagg attgttgccg ctgttttgtt
3241 ttaccttaac aacaacaaca aaaaaaatca ataatgaaga attatttatg aacgagatct
3301 cacattttca gattgctttt attattcatt aatgtaaaat gataaagaag atctatctca
3361 gaggctatag ctgggagcag aaactgtgaa atttgtgggt atctgaacac caaccacat
3421 gcaaaacccc acaagtgtag tcgtcattca atgtgattca gaaaggaaag agtcaaggga
3481 tatactggaa tatgttagag aagtagttcc agatatgctg gaatgttagc ccttgctagg
3541 agaaagctgg ttgtgcctat gtaatatagg acaaagggtg ccgatttcat caagtttgga
3601 gtcaattcta acaataaaaa tatgtataat ttgttaccgg catccccatt attgctaatt
3661 cattacagta tatacacatc catgcataca tatgtcaatg atgcttttagc tttcaattta
3721 tttattagct gttaaataatg tgtgggtatg taagaatgct tgtaaacact ggaaagtctg
3781 ttgtgggttat ctgcagtata gatttgtggg gctaactttg tgtccgtctc catccatgat
3841 tgtctgtctc actgagccaa cttaactctg atgaaacagt acaatgaaat aggcttttga
3901 aagaagaaaa ctcacctgtg tgaagaaatg gtatctgctt tcaataaaac tgagaacatt
3961 ttatcatga

(SEQ ID NO: 23)

Fig. 45B

1 meskalllvv lgvwlqslta frggvaaada grdfsdiessk falrtpedta edtchlipgl
61 adsvsnchfn hssktfvvih gwtvtgmyes wvpklvaaly krepdsnviv vdwlyraqqh
121 ypv sagytkl vgn dvarfin wmeefnypl dnvhllygysl gahaagvags ltnkkvnrit
181 gldpagpnfe yaeapsrlsp ddadfdvdlh tftrgspgrs igiqkpvghv diypnggtfq
241 pgcnigeair viaerglgdv dqlvkcshe sihlfidsl1 neenpskayr cnskeafekg
301 lclscrknrc nnlgyeinkv rakrsskmyl ktrsqmpykv fhyqvkihfs gtengkqhng
361 afeislygtv aesenipftl pevstnktys fliytevdig ellmmklkwm sdsyfswpdw
421 wsspsfvier irvkagetqk kvifcarekv shlqkgkdsa vfvkchdksl kksg

(SEQ ID NO: 24)

Fig. 46

Identification of disease subtypes allows for identification of causal targets for each

subtype

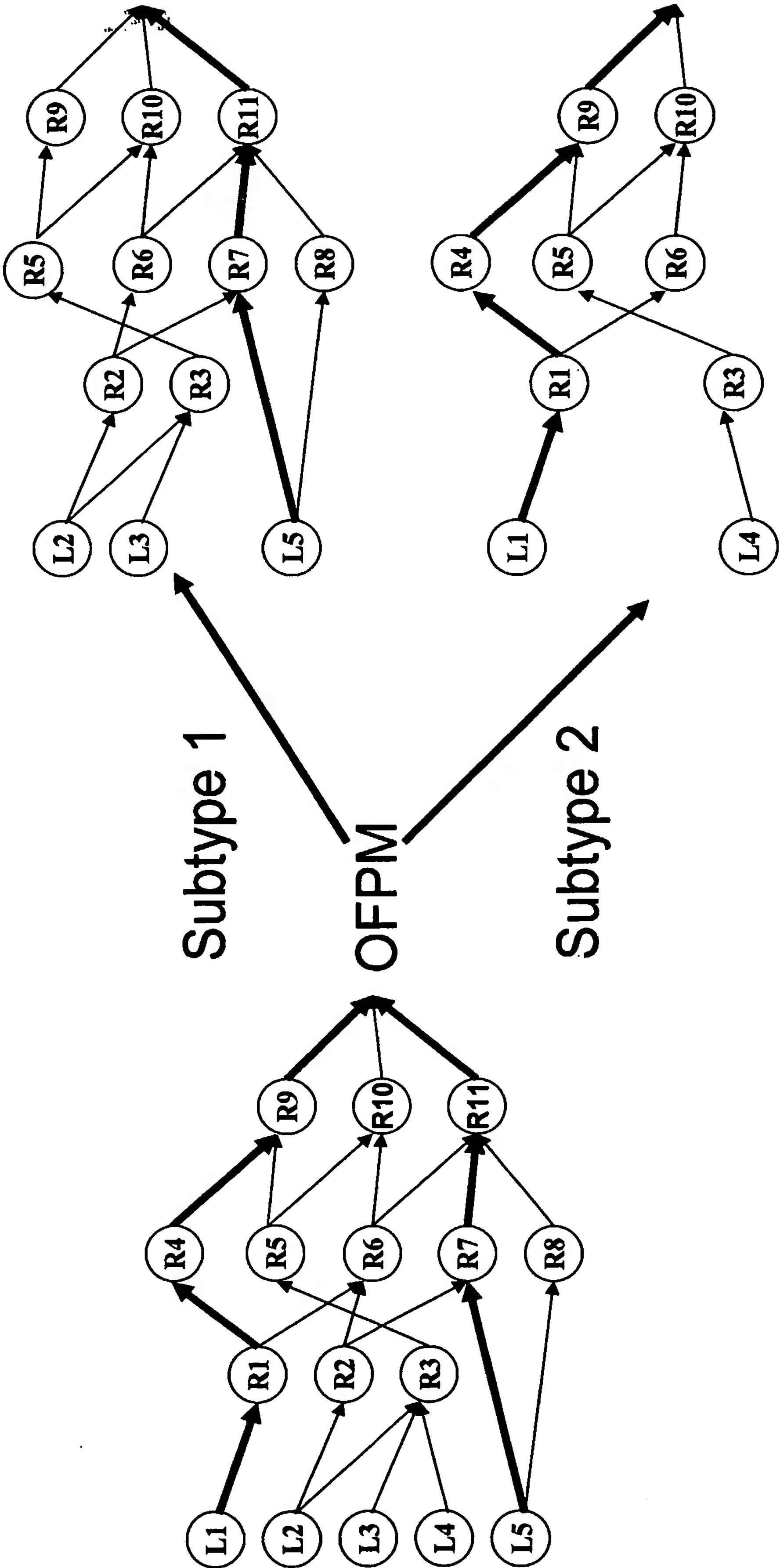


Fig. 47

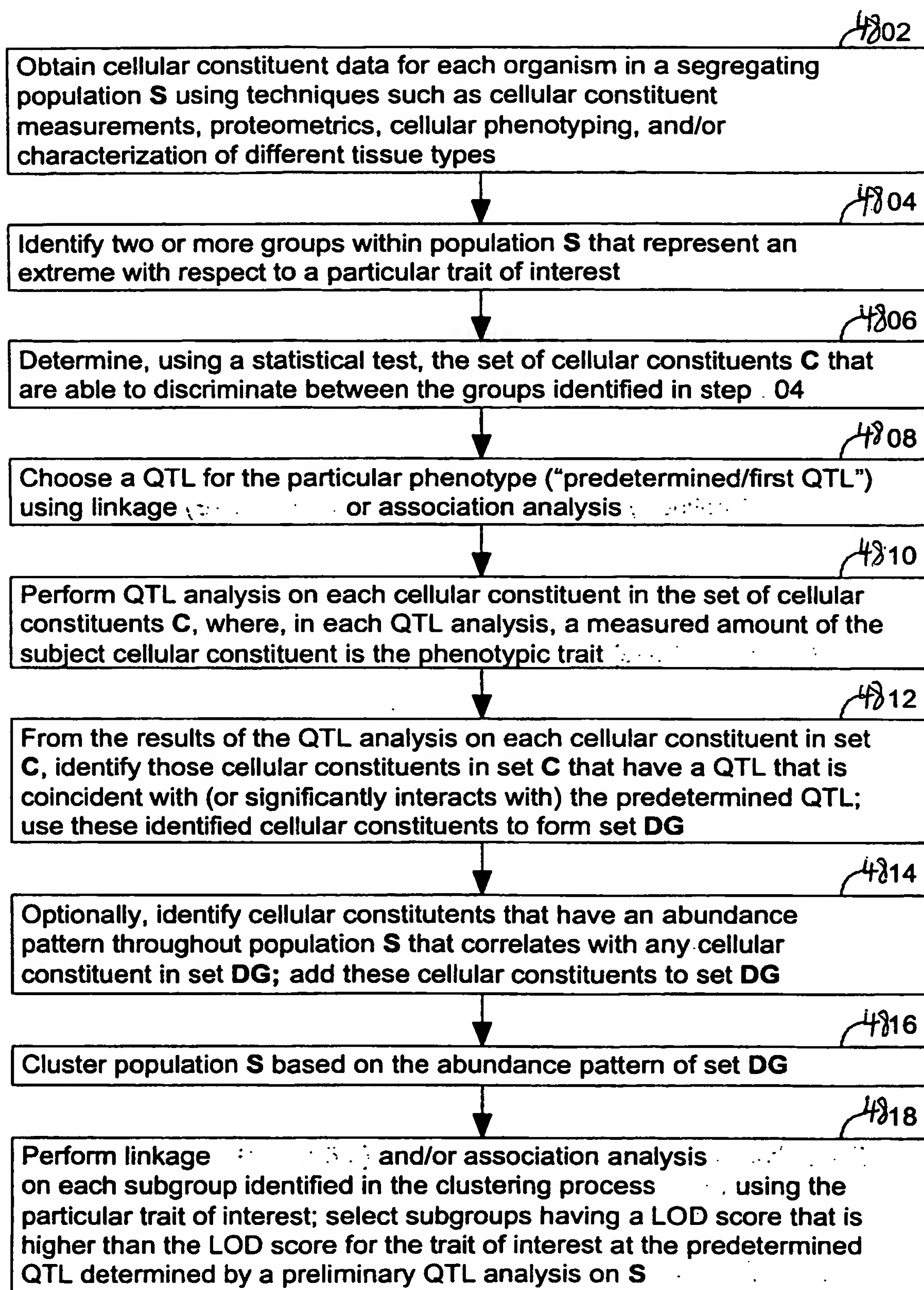


FIG. 48

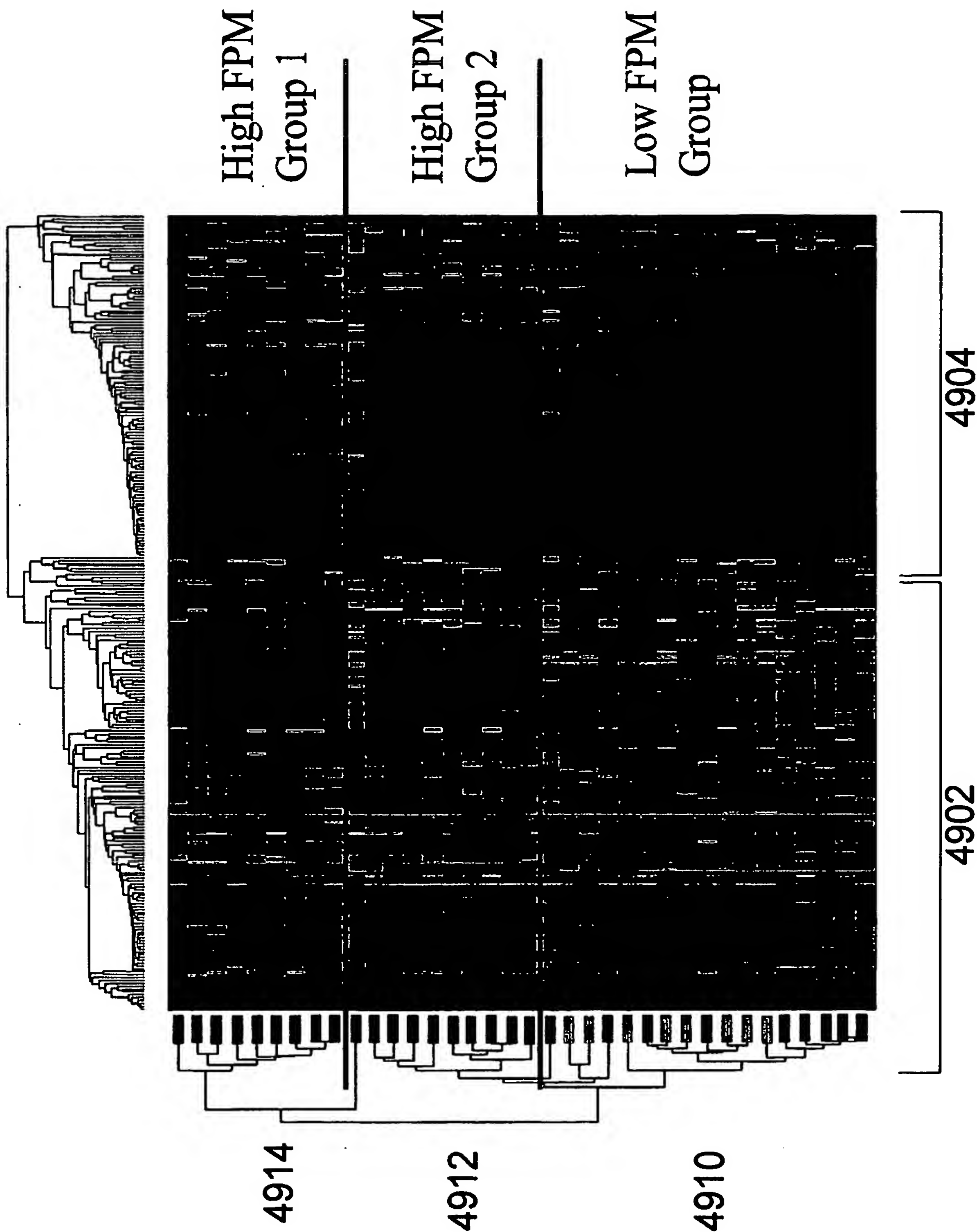


Fig. 49

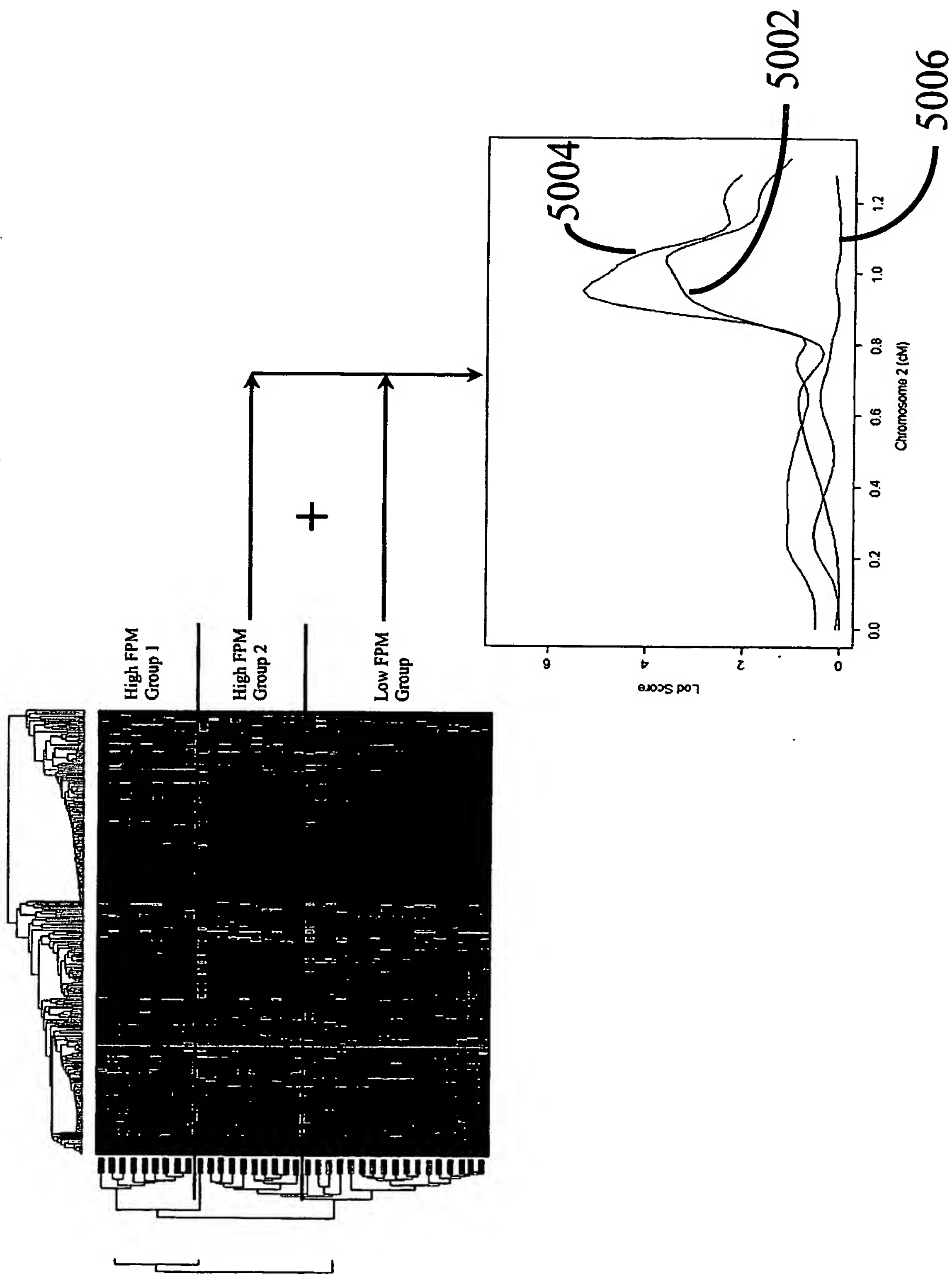


Fig. 50

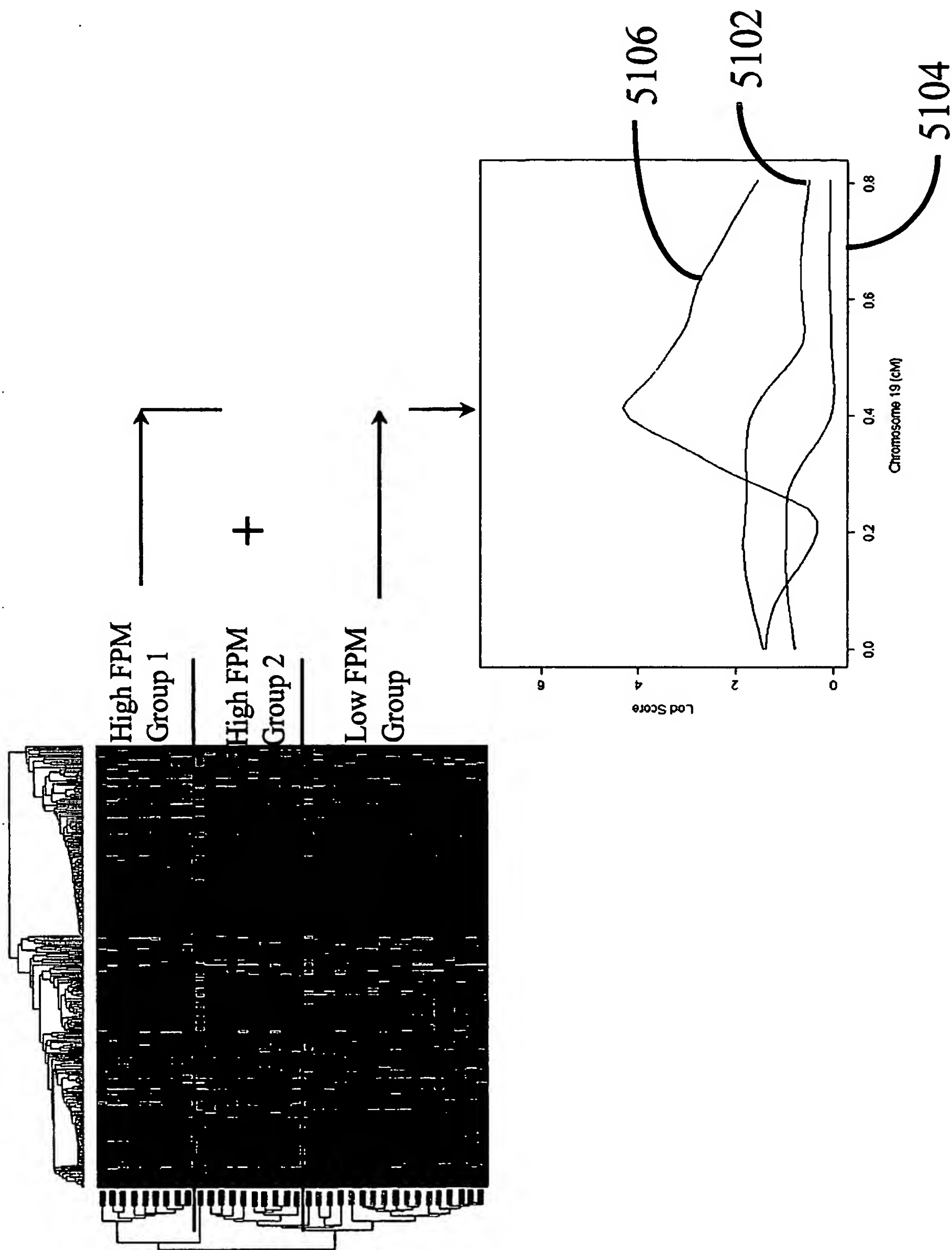


Fig. 51

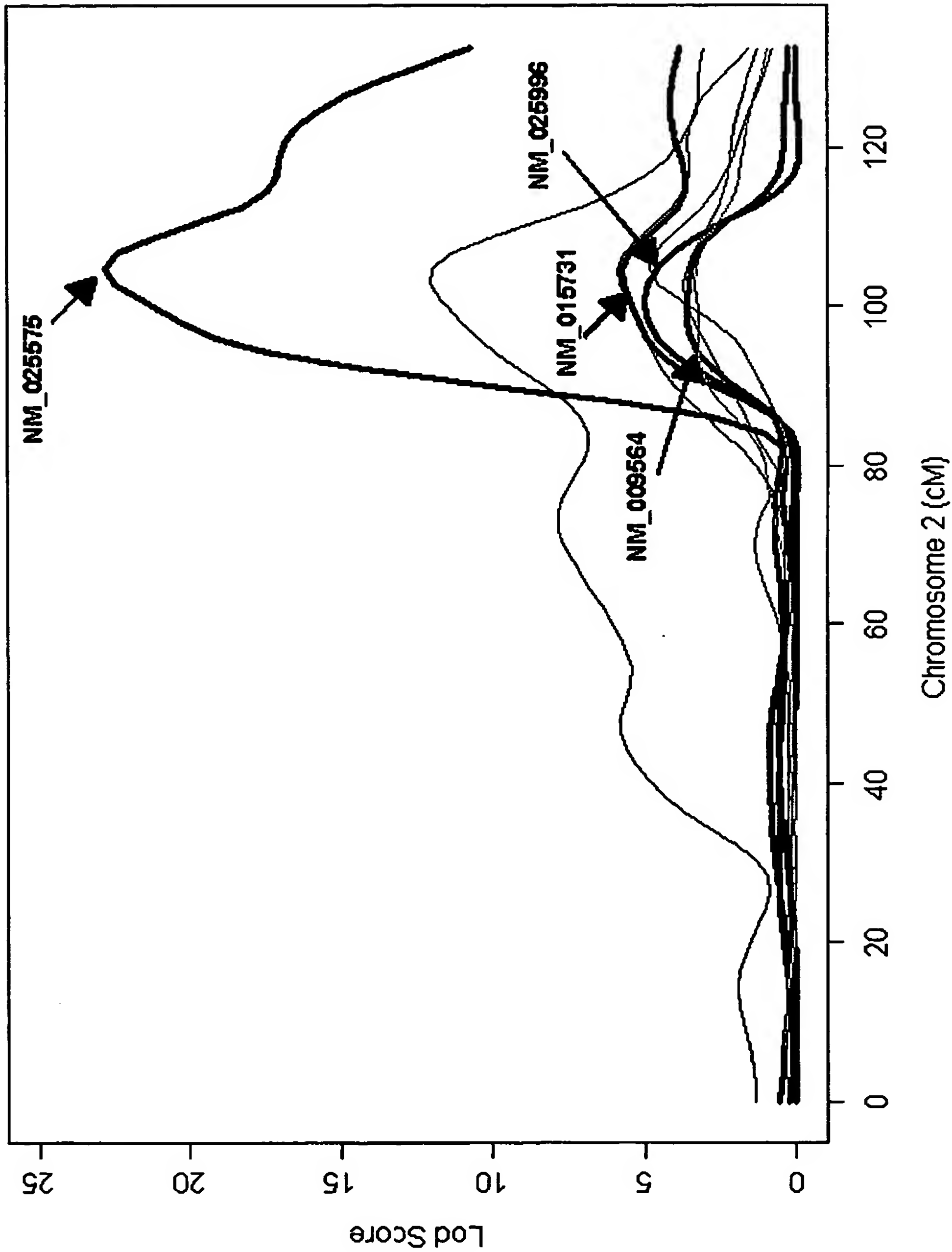


Fig. 52

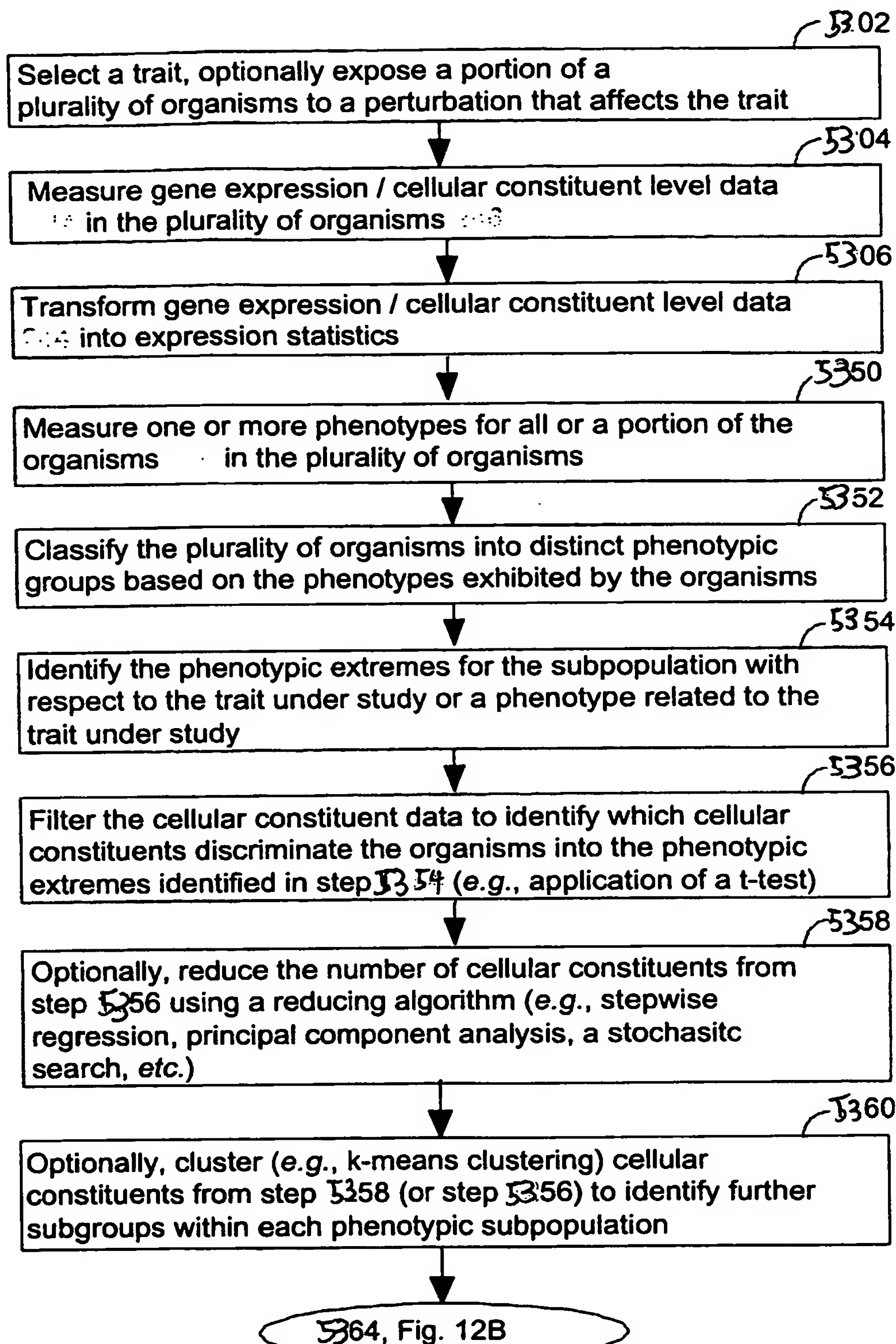


FIG. 53 A

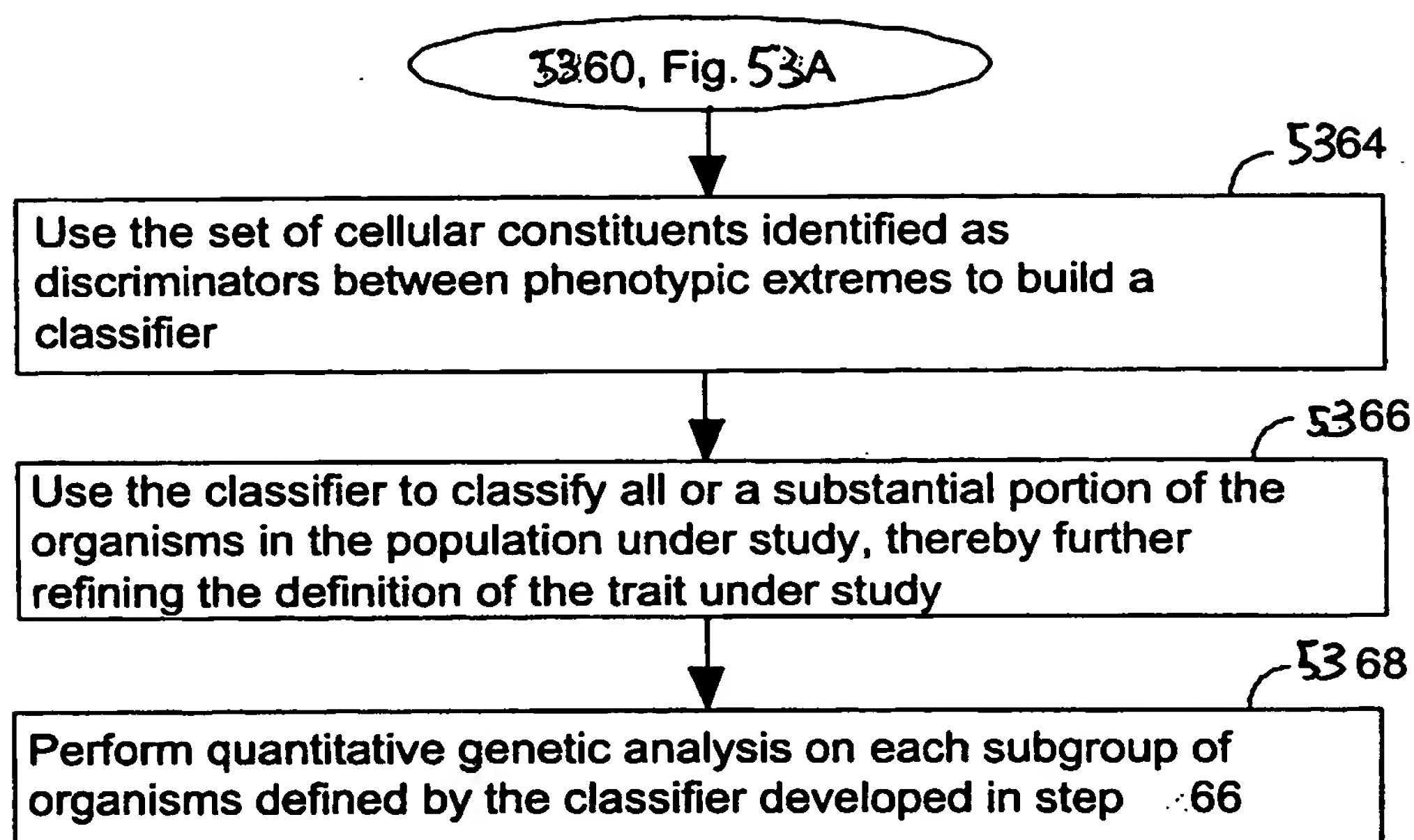


FIG. 53B

	Phenotype 1	...	Phenotype M	CC 248-1	...	CC 248-Z
Organism 146-1	Amount 1301-1-1	...	Amount 1301-1-M	Level 250-1-1	...	Level 250-1-Z
Organism 146-2	Amount 1301-2-1	...	Amount 1301-2-M	Level 250-2-1	...	Level 250-2-Z
⋮	⋮	⋮	⋮	⋮	⋮	⋮
Organism 146-N	Amount 1301-N-1	...	Amount 1301-N-M	Level 250-N-1	...	Level 250-N-Z

FIG. 54

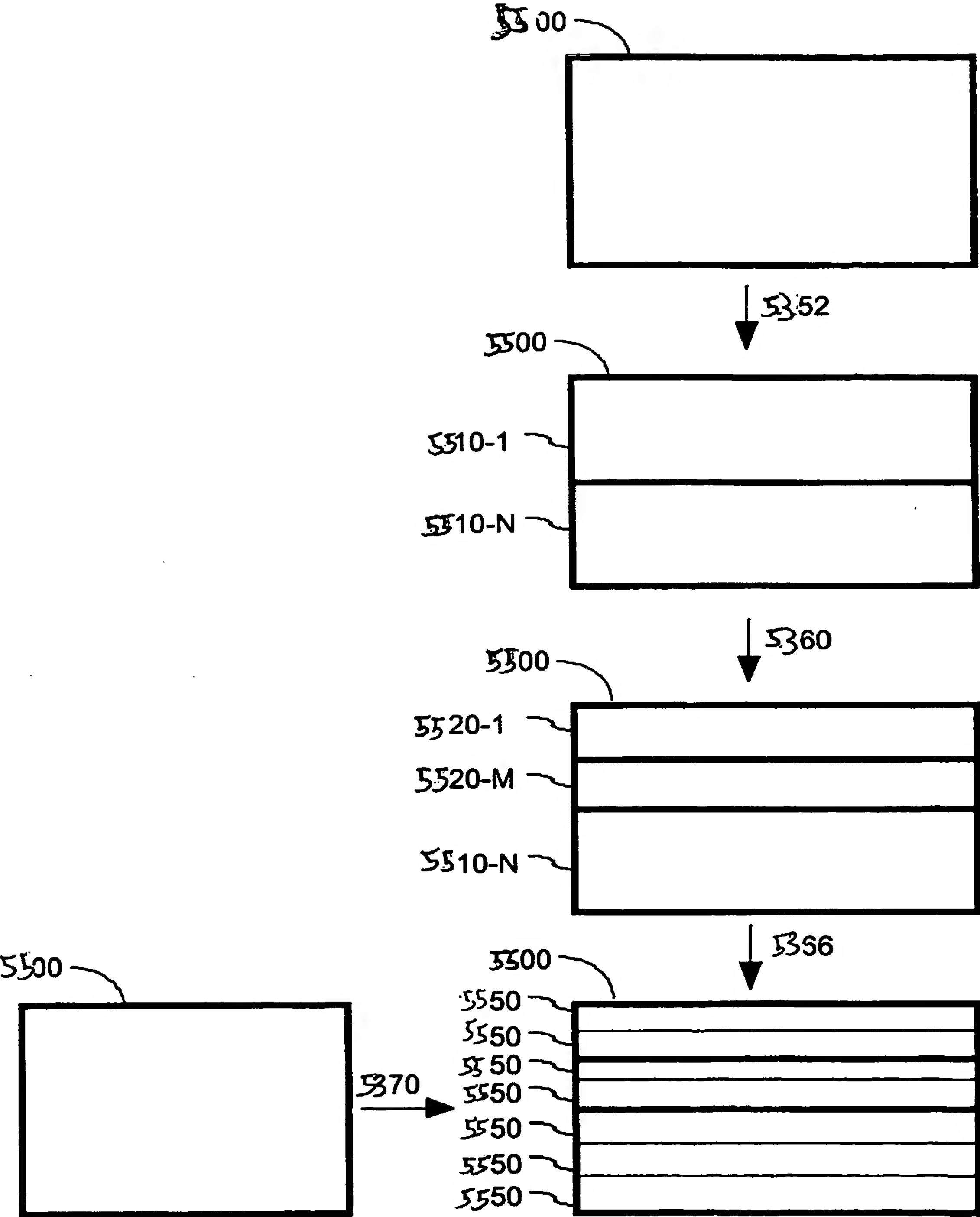


FIG. 55

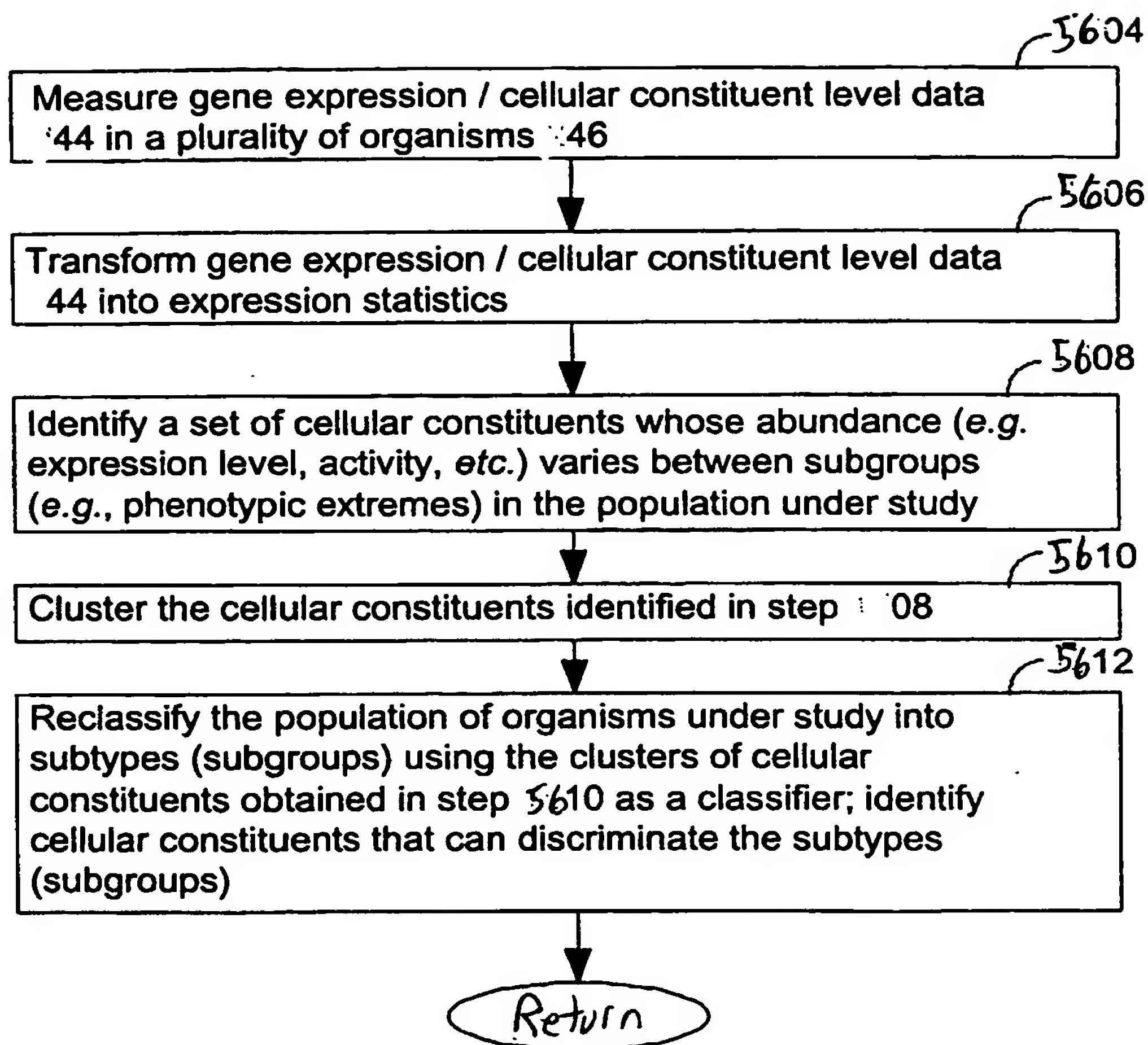


FIG. 56

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